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THE RAILWAY GAZETTE
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The Chancellor's Autumn Budget

THE Chancellor of the Exchequer made it clear when he addressed bankers and merchants in the City of London recently, that he intended to introduce an Autumn Budget, and that it would contain proposals "to relieve the inflationary pressure," in other words, increased taxation. He also spoke in favour of the 2½ per cent. interest rate, and referred to the unseemliness of higher rates of interest by borrowers of Government security. This suggests that he has in mind the re-establishment of something approaching the 2½ per cent. level from which Government securities have fallen in recent months. This matter is of considerable moment to holders of British railway securities, for, presumably, the Chancellor will launch his counter-offensive before the end of the year, when the British Transport Commission stock falls due to be issued in exchange for home rail securities. How the Chancellor can reconcile any action he proposes to take to depress the rate of interest with anti-inflationary measures remains to be seen, but he still appears to be hankering after a reduction in Government borrowing charges.

* * * * *

Discipline on the Railways

The decline in the standard of discipline in the conciliation grades of the railway service has not passed unmarked, and it has now reached the stage when the *Railway Review*, the organ of the National Union of Railwaymen, draws attention to the diminution which it has brought about in the standard of efficiency. That journal wisely emphasises a fact which has become increasingly apparent to all employers of labour; this is, that full employment has brought with it its own problems, one of which is how to maintain some reasonable degree of discipline among the workers. Absenteeism, lateness on duty, and refusals to carry out instructions cannot be ignored without detrimental effects to all concerned. The *Railway Review* states that it is not uncommon for men to refuse legitimate instructions properly given, and many cases are known where crews have left their engines on the road, causing serious and prolonged delay, or, in some cases, the cancellation of the train. It recognises that no authority can be exercised without the power to impose penalties on those who disregard instructions, and that it is not sufficient to say that the men will be educated to exercise self-discipline. It concludes that if the present procedure continues, any hope of an efficient national railway service in the future can be abandoned.

* * * * *

Claims Prevention on the L.N.E.R.

Mr. Miles Beevor, who before he was appointed General Secretary & Legal Adviser to the British Transport Commission, was Acting General Manager, L.N.E.R., in the current issue of the *London & North Eastern Railway Magazine* has drawn attention to the heavy claims which the L.N.E.R. has to meet for loss of goods in transit. In the last year before the war the total of claims paid was £122,000, whereas, last year it was no less than £1,159,000. This latter figure represents nearly £3 out of every £100 of gross traffic receipts, and never before in the history of British railways have claims approached this figure. Last year the staff was invited to submit ideas for claims prevention, and over 100 suggestions were received. Although there were not many which could be described as both good and new, it was learned that there were certain weak points in the existing system of supervision which required attention, and the scheme has been useful in drawing attention to these. Mr. Beevor points out that the success of all the efforts which are being made in the direction of claims prevention must depend on the spirit with which the problem is tackled, and he appealed to every member of the staff to do all in his power to reduce the number of claims.

* * * * *

High Steel Production

The strenuous efforts which the British steel industry is making to improve output is reflected in the production figures for September issued by the British Iron & Steel Federation. These show that output during that month was at the annual rate of 13,841,000 tons, which compares with 12,178,000 tons a year in August, and 12,402,000 tons in September last year.

This is the highest production rate ever recorded in September, and, indeed, is the highest for any month since March, 1943, when output was at the rate of 13,860,000 tons a year. Moreover, it is less than 500,000 tons below the wartime peak which was reached in May, 1940, when an all-out effort was being made for war purposes. To achieve the target set the steel industry by the Government for the current year—12,500,000 tons—the steel producers will have to maintain the present output for the next three months. The possibility of continuing to maintain the present high rate of steel production depends primarily on the ability of the works to secure their full coke allocation, and on the return to the steelworks of all possible scrap supplies, which will save pig iron.

Overseas Railway Traffics

In the fortnight ended October 4, increased traffics were recorded for both weeks by all the principal Argentine railways except the Buenos Ayres Great Southern, which lost ps. 416,000 in the first seven days. This decline was compensated in the second week by an increase of ps. 511,000, making the net result for the fortnight a gain of ps. 95,000. Gains on the Entre Rios and Argentine North Eastern have continued, both companies being now substantially ahead of their achievements at this time last year in spite of earlier decreases. On the Central Uruguay, however, the aggregate result is still £47,757 behind last year, and the fortnight under review brought a combined decrease of £11,304. Since experiencing the effects of the revolution in the country, which were mentioned in our October 3 issue, Paraguay Central results made a temporary recovery, and in the fortnight under review showed a gain of G10,969, although there was a decrease of G1,271 in the week ended October 3. Some results are compared below:

	No. of weeks	Weekly traffic	Inc. or dec.	Aggregate traffic	Inc. or dec.
Buenos Ayres & Pacific*	... 14	2,700	+260	34,925	+4,897
Buenos Ayres Great Southern*	... 14	3,250	+511	45,964	+625
Buenos Ayres Western*	... 14	1,440	+385	19,259	+2,823
Central Argentine*	... 14	3,566	+508	45,818	+2,346
Canadian Pacific 35	6,652,000	+348,000	51,289,000	+4,107,000

* Traffic returns in thousands of pesos

C.P.R. traffic figures for August show the disparity between gross and net earnings which was the subject of comment in our October 3 issue. For example, although the gross increase on aggregate for the eight months to August 31 was £4,107,000 higher, the corresponding net earnings showed a decrease of £132,500.

Canal Carriers to be Decontrolled

Canal carriers whose undertakings were brought under Government control during the war have been notified by the Minister of Transport that control will cease as from January 1, 1948. A similar notification has been sent to the Bridgewater Department of the Manchester Ship Canal Company. Except for the Bridgewater Canal, all the controlled canals are scheduled in the Transport Act for transfer on the same date to the British Transport Commission. Carriers, as such, are not included in the schedule. The Minister has also given notice that the wartime arrangement under which canal carriers received a subsidy on the transit tolls paid by them to canal owners will be terminated on December 31 next. During the war the subsidy was paid at the rate of 50 per cent. of the canal tolls. Since the beginning of 1946, the rate has been reduced to 33½ per cent., and the subsidy has been limited to tolls on certain traffics only.

Home Rail Jobbers after Nationalisation

For many years the home railway market of the London Stock Exchange has been among the most important sections of that institution. With the taking over by the State of the British railways on January 1 next, under the Transport Act, and the exchange of home railway securities for Government scrip, this market of necessity will cease. According to *The Financial Times* jobbers in the home railway section are already beginning to launch out into other markets. Dealers in the home railway section of Hadow & Turner are to enter the

bank share market. To the regret of many Stock Exchange members, however, the very old established firm of Barron Brothers, which has been in existence for the greater part of a century, is to disappear altogether at the end of the year. It is unlikely that an event of this kind will cause any concern among those who have been responsible for the passage of the Transport Act; indeed, they may feel that in the elimination of a not inconsiderable part of Stock Exchange activity they have promoted a cause they have at heart. Others may regret the destruction of part of a machine which has had its value in a process of private enterprise responsible for the development of an industry which, for more than a century, has played an essential part in the nation's economic progress.

International Timetable Conference, Istanbul

The annual International Timetable & Through Carriage Conference, at which the Continental railways agree on the services to apply for the twelve months from next May, is being held this year in Istanbul, at the invitation extended by the Turkish Railways at the Montreux Conference in October last year. The Conference opened on October 9, on which date and the two succeeding days the timetable and composition of the main trans-European expresses were discussed, namely, the Simplon-Orient express, the Orient express, Arlberg-Orient express, and Nord express, such trains interesting the bulk of the administrations represented. The opportunity was also taken of discussing certain commercial questions bound up with these services. The Conference then continued throughout the week, when all the other International services were discussed. The plenary session was held on October 15. All administrations participate, it being the opportunity of deciding matters of principle affecting all members of the Conference. The four British main-line companies are all members of the Conference.

Electronics in the Restaurant Car

Publicity has been given of late, both in this country and the United States, to what has been described as "cooking by radar." What is meant is the use of currents of very high frequency, such as were used in radar technique, to raise the temperature of food by induction. The advantages of this method of cooking when applied to railway restaurant cars were the subject of some papers read recently to the New York Railroad Club, a summary of which is given on page 437 this week. An electronic kitchen would be of smaller dimensions than the standard type, and could be accommodated in the centre of the car, thereby facilitating service. This arrangement is practicable because the heat in electronic cooking is concentrated where it is required, and problems of ventilation for the kitchen and passenger sections of the car are lessened. Few new technical words have been abused so early in their history as radar. This implies properly the detection of unseen objects by the reflection of electromagnetic pulses, but rapidly became extended to cover systems in which the response was not a pure echo, but a re-transmission from apparatus in the object concerned. Neither system has anything in common with the process of cooking by high-frequency currents.

Winter Coal Plans for Industry

Mr. Hugh Gaitskell, the new Minister of Fuel & Power, has announced the Government's coal plans for the winter. They make no allowance for exports, and are based on the assumption that output of deep-mined coal in weeks not affected by holidays will average 3·9 million tons. During the winter large industrial consumers are to get 23½ million tons, and, in addition, there will be the equivalent of a further 900,000 tons of coal in the form of fuel oil. Total supplies are thus equal to 24·4 million tons, or 23 per cent. more than the coal consumed by industry last winter. The Minister was emphatic in saying that there could be no shut down of industry, such as occurred in the earlier months of this year, and therefore, if gas and electricity consumption rose above the level assumed in the programme, coal might have to be diverted from elsewhere. This would mean from industry, because it uses the same type of coal as the power stations. The programme envisages railway supplies from current output

and stocks for the present winter at 7.50 million tons, which compares with an actual consumption of 7.70 million tons last winter. The figures have been calculated on the basis of a 10 per cent. cut below last year's level in non-industrial consumption, and Mr. Gaitskell estimated that by the beginning of November the stock target of 15 million tons would be exceeded by 250,000 tons.

* * * * *

Streamline Enterprise Pays

Another American railway, new to the diesel streamliner field, is proving that this form of passenger enterprise pays handsomely. On August 10, 1946, the Pere Marquette Railroad put into service two new trains over the 152-mile route between Detroit and Grand Rapids, Michigan, each making three single journeys daily, in place of two steam-hauled trains in each direction daily, morning and evening. Overall times, including stops, were brought down from 3 hr. 20-25 min. to 2 hr. 40 min. In addition to the attractive new rolling stock, described and illustrated in our February 7 issue, and the advantage of dustless and smokeless diesel haulage, numerous other innovations were made, in particular the privilege of reserving seats by telephone and paying for them on board the trains, of which roughly one-third of all the passengers are now taking advantage. The result has been that in 7½ months from the inauguration of the "Pere Marquette" streamliners the number of passengers carried over the route increased from 143,471 to 266,486, or by 86 per cent., while the receipts have increased from \$343,530 to \$617,677, or by 80 per cent. The slightly smaller growth in receipts as compared with the number of passengers is due to the fact that the old trains included parlour cars, with first class fares, whereas the entire accommodation of the new streamliners, made up of reclining chair, dining, and lounge cars, is for "coach" or third class passengers.

* * * * *

Missing a Perfectly Distinct Signal

The accident at Lambrigg Crossing signal box, between Grayrigg and Oxenholme, on May 18 last, which was inquired into by Lt.-Colonel G. R. S. Wilson, although associated with the use of single-line working on the down line south of that point, was really no different from any accident arising from a distant signal being passed unheeded. As will be seen from our summary of the report, the train had been accepted in the ordinary way, and the normal block telegraph clearance existed ahead of the home signal. Just beyond that stood an engine waiting to assist the train to back to the other line, in readiness to proceed in the wrong direction along it. The signals were against the train; the distant was an exceptionally clear and easy one to see. Nevertheless, the driver, who had noted that he would have to stop there, forgot that fact and also failed to see the distant signal at all; suddenly he found himself almost at the adverse home signal, and travelling fast. The light engine had begun to move away, but the two became locked. The collision occurred on a viaduct, but fortunately had no very serious consequences. Colonel Wilson considers that the guard might have exercised more attention and seen the danger in time.

* * * * *

Steam Pipe Joints Blowing

Anyone with running shed experience of steam pipes blowing in the smokebox will agree that where, as is often the case, the defect is due to distortion caused by heating, the work entailed in restoring steam-tightness is a most arduous and unpleasant job. If a blow-lamp can be used to heat the pipe (after bolting down one end) sufficiently to bring the bolt holes of the opposite end into register, it will be found, almost invariably, that the flange of the free end by then is inclined to the surface on which it has to bed; a good deal of further heating and persuasion generally is necessary in consequence. Designers, therefore, should be particularly careful about the disposition of steam-pipe flanges in smokeboxes, and make every effort to allow for such running shed jobs to be carried out efficiently. Thus, the location of bolt holes should allow for convenient tightening by box-spanner and "tommy bar"—instead of obliging the fitter to use a claw-foot spanner and hope for the best. Far more effective, however, is the introduction of the "Lenti-

cular" type of joint. A further fruitful source of leaky steam pipes is a boiler which gradually becomes free to "work" slightly in a fore-and-aft direction, as a result of the gradual loosening of the belts which fasten the smokebox to the saddle. This can be minimised by careful inspection and maintenance, but that is difficult to achieve under present conditions. We feel, however, that Mr. Bulleid probably has got much nearer to the solution by his adoption of corrugated steam pipes.

* * * * *

Western Australian Government Railways

THE loss of defence traffic in the year ended June 30, 1946, resulted in a decline of earnings spread over all services of the Western Australian Government Railways. Gross receipts, at £4,106,718, were £169,532 lower, but working expenses increased from £3,764,290 to £4,026,706, leaving net revenue of £80,012, which compared with £511,960 in the previous year. After meeting interest charges of £1,039,816, the deficit of £959,804 showed an increase of £421,295. Goods haulage was interfered with by coal shortages and lack of locomotives, but the report records the putting in hand of a motive power renewal programme, the effects of which will be felt in due course. This programme includes the acquisition from Great Britain of 14 Pacific class locomotives built originally for service in the Sudan (see our issues of September 17, 1943, and April 12, 1946). The table below compares some results for the two years dealt with in the report:

	1944-45	1945-46
Miles open	4,381	4,381
Train-miles...	6,262,697	6,409,278
Passenger journeys	18,099,395	17,136,230
Paying goods and livestock, tons	3,462,984	3,194,859
Ton-miles (paying goods and livestock)	334,797,395	351,832,853
Average haul, miles	115.27	128.99
Operating ratio, per cent.	88.03	98.05
	£	£
Coaching receipts	1,374,914	1,327,860
Goods and livestock receipts	2,759,288	2,673,974
Total earnings	4,276,250	4,106,718
Working expenses	3,764,290	4,026,706
Operating surplus	511,960	80,012
Interest charges	1,050,469	1,039,816
Net loss	538,509	959,804

Although suburban passenger-mileage was reduced as a result of the withdrawal of special workmen's trains, there was an increase in mileage run in country districts, arising from the policy, introduced in the November, 1945, timetable, of substituting fast passenger services for mixed trains. In this connection there was an extension of diesel-electric railcar services on branch lines. Six of these units were in service during the year, and covered 399,744 miles, an increase of 50,209 miles, new services having been introduced on six routes. Delivery of further cars is awaited, and these will be used on main lines to replace older vehicles of a similar type, which will be transferred to branch lines, and will reduce further the number of mixed train services. Total train-miles in all classes of service were 6,409,278, an increase of 146,581.

Goods traffic earnings decreased from £2,759,288 to £2,673,974, because, although some items showed considerable increases, these were in the lower-rated classes of traffic. The average haul increased, putting the ton-miles up from 334,797,395 to 351,832,853, and this, coupled with the tapering of goods rates for longer distances, reduced the average goods and livestock earnings per ton-mile from 1.9d. to 1.7d. Since 1944, additional annual costs totalling £1,278,000 have been imposed on the department, to which public holidays contribute £100,000, and basic wages increases amount to £85,000. At the same time the return of staff from the forces, and the greater availability of materials, is causing maintenance work to resume more normal proportions. The report states that in the absence of any means of counteracting the increased expenditure, such as a rise in charges, the deficit of £959,804 in the year under review must be regarded as the forerunner of still higher losses.

Representations were made to the Government regarding the reduction in motive power and rolling stock resources of the department as a result of war conditions. Rehabilitation proposals were put forward, and advice was received on March 12, 1946, that these could be put into operation immediately. The programme provides for an expenditure of £2,819,500 over a 10-year period. For the first 5 years of this period, an accelerated programme of restoration is being put into force, envisaging the construction of 62 locomotives, 48 coaches, and 1,040 wagons. In addition to the orders for new equipment,

the department has proceeded actively with improving the appearance and the amenities of existing coaches by repainting, refurnishing, and the replacement of fittings.

* * * *

The Winter Train Services

POSSIBLY because the main-line passenger services of October, 1946, were on an unexpectedly liberal scale, or perhaps because there has been more time to negotiate the latest "cuts," the October, 1947, timetables—representing a ten per cent. mileage saving on the previous winter—do not appear quite so austere as we were led to expect. It proved possible, also, to mitigate the severity of some of the June cancellations quite early in the summer. Between Euston and Birmingham, for instance, the 6.55 p.m. down and 10.10 a.m. up came back as daily trains very soon after the timetables appeared, and mileage was "found" to admit of the daily running, all over the country, of a number of duplicates and week-end trains.

Although the Southern timetable promises the restoration in December of the London and Paris sleeping car service by train-ferry, the latest ban on foreign travel is likely to affect winter business to the west and south of England, and the Great Western, besides retaining the "Limited" to Penzance and the "Torbay," at their summer schedules, has re-instated the 1.30 p.m. from Paddington to Penzance, *via* Castle Cary, together with the up service from Cornwall due at 9.10 p.m., though the 4.30 p.m. down remains a Fridays only train. The Wolverhampton and Penzance through train is continued, but not the Birkenhead and Bournemouth (which ran at week-ends in summer), and the Paddington and Bristol services are unchanged.

To South and West Wales, a duplicate of the 11.55 a.m., running at 11.35 on Tuesdays, Thursdays, and Saturdays for the Cork boat, gives the best timing in operation to Newport (2 hr. 35 min.) and reaches Fishguard at 6 p.m., but there are no other important changes, and the full service to Birmingham and the north is maintained. As compared with October, 1946, the most serious losses are probably in the Paddington, Oxford, and Worcester service, where the 11.45 a.m. from London has not reappeared, and in the midday service to Bristol, where the 11.15 still leaves at 10.45.

On the Southern, the trains to Devon (after the withdrawal, at the end of October, of the "Devon Belle" Pullman), are on normal winter lines, save that the 12.50 from Waterloo and 11.30 a.m. from Brighton to Plymouth are combined west of Salisbury. From Waterloo to Bournemouth, the 10.30 a.m. and 2.30 p.m. departures are still missing from the hourly sequence, but the 6.30 p.m. (the most drastic and unpopular of the summer cuts) is re-instated, and the up service from Bournemouth is better spaced by the daily running of the 12.40 p.m. (Saturdays only last winter) as a 2½ hr. service to Waterloo. With the "Bournemouth Belle" still running daily, and unaltered, the ten best up trains now average 2 hr. 34 min. as against 2 hr. 40 min. on the down run, which are creditable figures for a 108 miles journey, considering that there are no non-stops and several trains with seven or eight intermediate halts. Three of the hourly departures to Portsmouth (10.45 a.m., 1.45 and 7.45 p.m.) are "Saturdays only," as is also the 1 p.m. from Victoria to Brighton, though the "Brighton Belle" makes three daily trips each way.

On the Eastern section, the Hastings line is still rather badly "cut," with no daily fast train down till 2.25 p.m. from Charing Cross and no fast up service after 2.10, and the Kent coast service is disappointing, in spite of its greatly improved locomotive power. With the inclusion of three "business" trains each way, which make the journey in times varying from 1 hr. 43 min. to 1 hr. 51 min., the Victoria and Margate (74 miles) average time by ten trains is 2 hr. 5 min. down and 2 hr. 17 min. up. In the case of Hastings, the electrics from Victoria *via* Eastbourne, which are hourly in the down direction from 9.45 to 12.45 and run up at 3.5, 5.5, and 7.5, fill the gap in the Charing Cross services fairly well, but there is nothing to supplement the Kent coast trains.

On the London and North Eastern, nearly all the summer main-line "cuts" are restored, including the 1 a.m. Kings Cross to Edinburgh and the 8.40 a.m. Leeds to Newcastle and 8.21 p.m. return (4 p.m. from Glasgow), and the gap in the Edinburgh and Aberdeen service, caused by the "crisis" with-

drawal of the 9.35 a.m. Dundee to Aberdeen and 3.15 p.m. return, has been filled up, though one important link in the Anglo-Scottish service—the 4.15 a.m. Edinburgh Waverley to Perth—is missing. The Kings Cross and Leeds service still lacks the 7.30 a.m. down, so that the 8.45 a.m., with its 1.3 p.m. arrival at Leeds, is the earliest down train, and the 7.30 a.m. up from Leeds—due in London at 11.37—runs on Mondays only as a relief to the 7.50, which arrives at 12.15 p.m. There is a little all-round deceleration, which makes 8 hr. 5 min. the best Edinburgh and Kings Cross schedule, and adds a few minutes to the restored "Yorkshire Pullman" (now taking 3 hr. 53 min. down and 3 hr. 50 min. up between London and Leeds), but the "East Anglian"—once more a titled train—is unaltered in speed, though running 10 min. earlier on the up journey. The Great Central Section is rather less fortunate, as the through trains *via* Woodford and Banbury to Swansea and to Bournemouth are still missing, and the loss of the 8.45 a.m. from Marylebone forces the 10 a.m. to retain its extra stops and to take 2 hr. 20 min. to reach Leicester. The best schedule to Leicester is now 2½ hr., with one stop, by the 6.15 "Master Cutler," though this train runs up from Leicester with one stop in 124 min., and its Sheffield-Marylebone schedule of 3 hr. 35 min. is the best up or down, by any route. Elsewhere, we notice a welcome improvement in the morning service from Carlisle to Newcastle, and the alteration to 1.45 p.m. of the 1.10 from Edinburgh to Kings Cross. The 10.5 p.m. arrival in London has made the connectional departure from Aberdeen 9.30 a.m. instead of 9.5, but the 11.20 a.m. departure from Glasgow is unaltered, the 12.25 p.m. from Perth still fails to connect with it at Waverley, and a valuable connection for Leeds is severed at York.

The L.M.S.R. timetable gives extra time to many expresses (a concession, no doubt, as on the L.N.E.R., to engineering troubles, present or to come) and this is serious enough on the Midland division to make the best advertised times between St. Pancras and Leeds 4 hr. 41 min. down and 4 hr. 45 min. up. The St. Pancras and Manchester average time by the ten principal services, only four of which carry restaurant cars throughout, has now risen to 4½ hr., though the Midland division has to its credit the introduction of a second through restaurant car train daily between Newcastle and Bristol (alternately L.M.S.R. and L.N.E.R. stock), and the running of a much-needed restaurant car at 10.25 a.m. from Leeds to Dumfries, returning on the 4 p.m. from Glasgow.

The Western division has restored the 11.10 a.m. from Liverpool to Euston and runs, as daily trains, nearly all the services which became "Fridays and Saturdays only" last June. Euston and Birmingham is almost back at the level of October, 1946, and there is a great improvement in the Birmingham, Liverpool, and Manchester service, where the non-stop running between Birmingham and Crewe of the daily through train from Bournemouth brings the best Birmingham and Manchester time down to 2½ hr.

The most interesting restoration is that of the 1 p.m., at 1.15, from Glasgow to Euston—an 8½ hr. service—which now combines a through portion at 12.15 p.m. from Perth, connecting with the 9.40 a.m. from Aberdeen, so that the Aberdeen to Euston time by this route is 15 min. less than that of the East Coast 9.30, though, generally, there is no attempt to rebuild the services between Euston and Edinburgh or Aberdeen. The balancing train, now leaving Euston at 1 p.m. instead of 1.15, has its Crewe stop restored. The Midland division reverts to 8.55 a.m. from St. Pancras as the departure time of its day service to Edinburgh Waverley, with the result that the Edinburgh and Glasgow trains from St. Pancras come into Carlisle within 20 min. of each other (the former missing, by a narrow 2 min. margin, the 4.30 from Carlisle to Perth), and 2.27 is the latest Midland departure from Leeds for Scotland. Over the old Glasgow & South Western route, the 12 noon from St. Enoch is restored as far as Carlisle as well as the 12 noon from Edinburgh over the Waverley route. These trains reach Carlisle at 2.40 and 2.35, connecting only with the 3.52 to Euston, and they return at 6.50 p.m. to Glasgow and 7 to Edinburgh, the connection from the south being the 10.40 a.m. from Euston, due in Carlisle at 5.55 p.m., though the 1 p.m. from Euston arrives at 7.22.

The restoration of a limited amount of seat reservation (still at the old 1s. fee), an increase in the number of restaurant cars, and the reappearance of buffet cars on the L.M.S.R. are all

welcome, and there can be no reasonable complaint of the lack of acceleration. Nevertheless, it is disappointing to see so little evidence of constructional effort in the new timetables, and so little attempt to make the most of the services still running by the restoration and improvement of connections between groups, and even between divisions of the same group.

American Railway Research

FOR five years from 1942 onwards, a special committee organised by the Association of American Railroads studied every phase of transport development. From time to time interim reports were issued on subjects ranging from accounting and statistics to water transport. These reports contain much new material which will be useful for reference purposes and are noteworthy for their skilful handling of statistics. Their contents have now been summarised in a final and monumental report bearing the all-embracing title "Transportation in America." Elsewhere in this issue we review this great thesis at some length.

In a foreword, Mr. W. T. Faricy, President, A.A.R., calls the work of the committee "a worthwhile undertaking"; in his opinion, it demonstrates that "the railroad industry is alert to its obligations and opportunities." We agree with the first statement and undoubtedly the committee's reports will be invaluable as factual records. On the other hand, few constructive suggestions are to be found in the final report and it does not recommend any radical change in established methods or policies. As an economic analysis of the railway situation, the report is thorough, almost to the point of being ponderous, but it does not offer much guidance to the member companies of the A.A.R. for action on fresh lines. Despite these reservations—what would we not give for a similar survey of transport in Great Britain! One ought to have been made before the country was committed to a policy of nationalisation.

Wider Application of the G.W.R.'s A.T.C. Apparatus

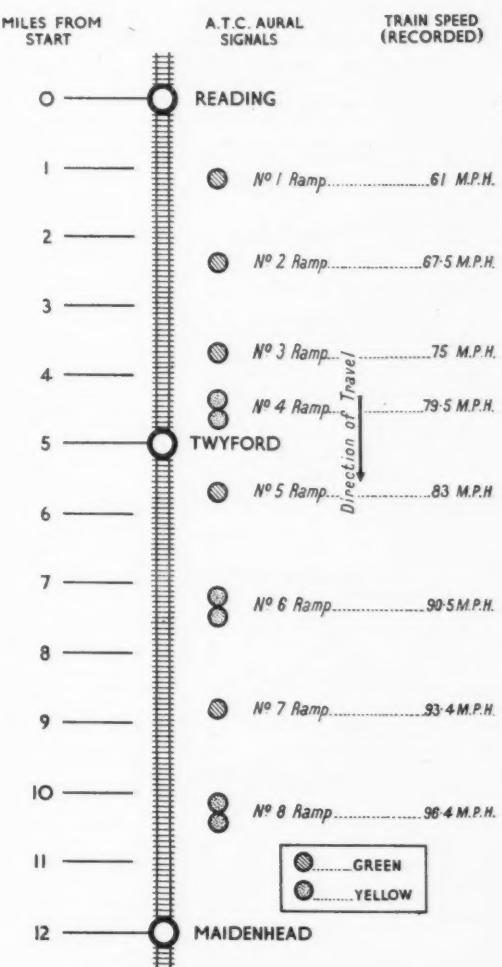
ON Sunday last the Great Western Railway invited a number of representatives of the Ministry of Transport, other railways, and the Press to make a trial run between Reading and Maidenhead on a train drawn by engine No. 5056, *Earl of Powis*, fitted with a modified form of the company's well-known automatic train control apparatus. This had been arranged to give not only the usual "line clear" (bell) and "caution" (siren) audible signals to the driver, but an additional warning to meet the case of a double-yellow aspect being exhibited at a colour-light signal. With the desire for a greater use to be made of existing running tracks, and so as to be able to increase the number of trains each hour, it has become necessary to adopt a different system of visual signalling from the present semaphores. It is essential, moreover, to emphasise that the higher the speed of the train, the longer becomes the stopping distance, which means that distant and home signals must be sufficiently far apart to permit the fastest train to stop at the home signal if the distant is against it. As about 2,000 yd. is the distance required on the level as service braking distance for a train travelling at about 90 m.p.h. a very considerable line capacity is lost in ordinary 2-aspect semaphore signalling areas.

It has been considered likely that some applications of 4-aspect signalling will become necessary in the near future on the G.W.R. and experiments therefore have been carried out, and brought to a successful conclusion, with the object of modifying its automatic train control apparatus, first brought into use some 40 years ago, to enable it to work satisfactorily where such signalling may have to be applied. In January, 1946, tests were made, using a diesel car, with the improved equipment on the Henley branch—where the first installation of the original apparatus had been made in 1905 and put to work on January 1, 1906. The results were satisfactory and it was decided to give the apparatus a practical test on a locomotive running at high speed on the up main line between Reading and Maidenhead. It was considered that a speed of about 92 m.p.h. could be reached when passing over the ramp applying to the Maidenhead up main distant signal.

No 4-aspect signals are in use at present on this section of

the line, but arrangements were made for three of the ramps there, one at the approach to Twyford and two between that station and Maidenhead, to transmit the new warning to the locomotive for test and demonstration purposes. The working remains unaltered as far as the ordinary "line clear" and "caution" aspects are concerned, but when a double-yellow warning is to be given, the ramp is energised with the opposite polarity to that used to signal "line clear," and an electrically controlled air-intake horn begins to sound, followed by the siren and usual gradual brake application, as the engine passes over it. The two different and distinct warning sounds thus confirm that the signal concerned is at that moment at double-yellow. The driver must, of course, silence the warning and thus cancel the brake application, in the same manner as when receiving the plain siren caution warning, already in general use.

On the demonstration run the ramp at the approach to Maidenhead was passed over at a speed of 96·4 m.p.h., as



recorded on the chart in the dynamometer car, the train being in due course stopped in the ordinary way by the driver in the station. Another test was then made approaching the Farnham Road signal box at a speed of 63·6 m.p.h., when the engine regulator was left fully open, the train being pulled up by the brake application set up automatically in a distance of 1,505 yd. The visitors were able to hear the audible signals received on the engine over loudspeaker equipment in the coaches, by means of which also much instructive comment was given in the course of the run. On arriving at Paddington they were able to inspect a full set of the equipment mounted in the guard's van, in working order.

LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of correspondents)

Swiss Railways

"Cottesloe," 14, St. Mark's Avenue,
Old Bilton, Rugby. October 3

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR.—On page 295 of the September 12 issue of *The Railway Gazette* it is stated that the Fribourg-Morat-Anet line was the only line in Switzerland to be worked on the third-rail system. It would seem that this statement is not correct. As recently as August this year, the 19 kilometres of the Martigny-Le Châtelard metre-gauge line was operating on the third-rail system. There is no indication at present that any change is contemplated. The system is carried on through Vallorcine to Le Fayet (P.L.M.).

Yours faithfully,
G. H. PAULIN

Locomotive Lighting and the Board of Trade

The Gyles House,
Pittenweem, Fife. September 27

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR.—I was talking to an engine driver on the L.N.E.R. yesterday—I do not remember the exact number of his engine, but it was 1200 odd—one of the latest of the class of No. 1040 *Roedee*. The cab was equipped fully with electric lighting—the current was supplied from a turbo-generator situated on the right side above the cylinders. This is a distinct improvement on the generating equipment supplied to earlier locomotives of this class, which supplied current only when the locomotives were in motion.

The driver told me that the Board of Trade had condemned the electric headlamps, so he had heard, so ordinary oil lamps were in use. If this is true, it would be interesting to know why the B.O.T. would not permit electric headlamps.

Incidentally, the fireman remarked that his brother (or some relative) had been driving locomotives in Rhodesia for 24 years, and they were equipped fully with electricity. Why are the British railways so far behind in this respect?

Yours faithfully,
G. RICHARD PARKES

Steam and Diesel Haulage in the U.S.A.

5, Yewlands Crescent, Fulwood,
Preston. October 2

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR.—It has been a source of wonderment to me for some time why the American railways were so rapidly changing their motive power from steam locomotives to diesel-electric locomotives, especially as we know from data given from time to time in *The Railway Gazette* their steam locomotives are so efficient.

Having just returned from a fairly extensive tour of the United States, I have come to understand more why the trend should be so. During a run on the "Chicagoan" from Buffalo to Chicago we experienced a long delay near Cleveland Station where the train was not scheduled to stop. This train was steam hauled. In spite of some fast running later it was not able to make up the lost time and we were half an hour late in arriving at Chicago. Admittedly this train operates on a fast schedule.

Later I made the run from Chicago to New Orleans in the Illinois Central "Panama Limited," which was diesel hauled. There was an unaccounted-for long delay in Memphis Station, but in spite of this we were in New Orleans ahead of time, due to some fast running through Mississippi and Louisiana, the average speed being 63 m.p.h. with eight intermediate stops.

Probably the most spectacular performance to me was running through the hills of Georgia and North Carolina on the "Piemont Limited." This is a train which starts from New Orleans and for the first part of the journey is steam hauled. I joined the train about eighty miles after it had left New Orleans and it was 10 min. late there: some time during the night, either at Mobile or Montgomery, a double-unit diesel took over. At Atlanta by breakfast time we were on schedule again.

Through both Georgia and South Carolina we seemed to run up grades of the order of 1 in 150 without any appreciable diminution of speed, that is about 75 m.p.h. The get-away from stations was most remarkable. As far as I could see, the same locomotive took us all the way over the Southern Railway system from Montgomery to Washington; with air-condi-

tioned cars, of course, it is not possible to open a window and look out. The train was very regular and dead on time at all the stations, more often than not waiting at stations to keep to schedule. The schedule of this train does not look very spectacular, but its make-up of cars is altered at practically every station which has a junction; of the twelve cars which left New Orleans, only three remained at New York out of the fourteen it finished with. These changes in train make-up take time, so actual speeds between stations were high.

I would like to mention that I was surprised to find such smooth running generally on U.S.A. railways, which after investigation I found to be due to a combination of good track, good bogies, and sound-insulated cars. The running over the New York Central Lines was especially smooth and in this case it was largely due to the track. The smoothness was superior to any train I have travelled on previously, including our own railways and many Continental railways. New York Central seem to have eliminated rail-joint noise. Some of the railways in the Middle West and mountain states were not so good in this respect.

I did not find the American sleepers quite so good as our first class sleepers and their diners were only superior to ours in the variety of food offered, but they certainly seem to have something with their diesel locomotives as regards time keeping under adverse conditions—they have that extra well in hand over and above the schedule timetable. There are, as is well known in England, some very fast steam-hauled trains, but my experience was that, if these trains were delayed for any reason, they were not able to make up this lost time.

I chatted with several diesel locomotive crews and they generally seemed to prefer the diesel to the steam locomotive. I was also given the opportunity of examining the interior of several diesel locomotives and found them kept very clean.

Yours faithfully,
H. CHARNLAY

Salaries of Engineering Staff

Brighton. October 7

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR.—I thank you for publishing my letter in your October 3 issue, but would point out that the second sentence of the second paragraph should read: "Most of us have a net income very little in excess of that in 1939, etc.," and not "most of us had, etc.," which materially alters the meaning I have tried to convey.

Yours faithfully,
GEORGE E. R. LACEY

Direct Steaming in Running Sheds

London & North Eastern Railway,
Liverpool Street Station, E.C.2. October 7

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR.—The note on this subject in your October 3 issue mentions possible advantages in the reduction of stresses in firebox plates, and reduction in corrosion in shed roofs.

There is yet another point of view: direct steaming appears to offer a reduction in the turnaround time of locomotives, since full steam pressure can be reached more quickly by this method than by the ordinary process of steam raising. The system is at present on trial at a large depot on the London & North Eastern Railway.

Yours faithfully,
L. P. PARKER
Locomotive Running Superintendent,
Eastern Section (Southern Area)

High Speed in Switzerland

9, Keble House, Manor Fields, Putney,
London, S.W.15. October 4

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR.—*Apropos* the article in your issue for August 29 headed "High Speed in Switzerland," here are some details of a run which I timed between Lausanne and Geneva on September 30. The train concerned was No. 6 (7.08 a.m. ex-Zürich), due off Lausanne at 10.03 a.m. and into Geneva at 10.40 a.m. With R.E.4/4 locomotive No. 414 and eight vehicles of lightweight stock weighing approximately 225 tons tare, we left Lausanne at 10.04-15 and, notwithstanding two severe permanent way checks, one on each side of Renens, ran into Geneva exactly at 10.40 a.m., having covered the 37.4 miles in 35 min. 45 sec., or approximately 34½ min. net. The first 7.7 miles to Morges occupied 10 min. 35 sec., but sustained high speed followed, our average over the 27.4 miles between Morges and Chambéry being 74 m.p.h. with a maximum of 79 m.p.h., reached both before and after Céigny.

I have excluded runs of less than 15 miles in length and also those on international trains, but on my remaining 12 journeys over Federal, Lötschberg, and M.O.B. lines, totalling well over 600 miles, I recorded an average late departure of 1.9 min. and an average late arrival of 1.4 min. These extremely creditable results were achieved in spite of the unusual amount of engineering work in progress, necessitating not only severe slacks, but single-line working in a few instances, and are striking evidence of the high standard of punctuality for which the Swiss railways are justly noted.

Yours faithfully,
J. E. L. SKELTON

An Early Crewe Experimental Design

London Midland & Scottish Railway Company,
Nelson Street, Derby. September 22

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—During a recent overhaul of the old records at Crewe Works, the accompanying drawing was found, which illustrates a locomotive type of which no previous record has been published so far as is known.

Unfortunately, the date on the print is illegible, but from internal evidence there is little doubt that the design must have been prepared in the early 1840s. The design is interesting for two main features: first, the carrying to an extreme extent of the idea that the centre of gravity should be kept as low as possible, a feature which it will be remembered was being sought at about the same time in the design of the original Cornwall.

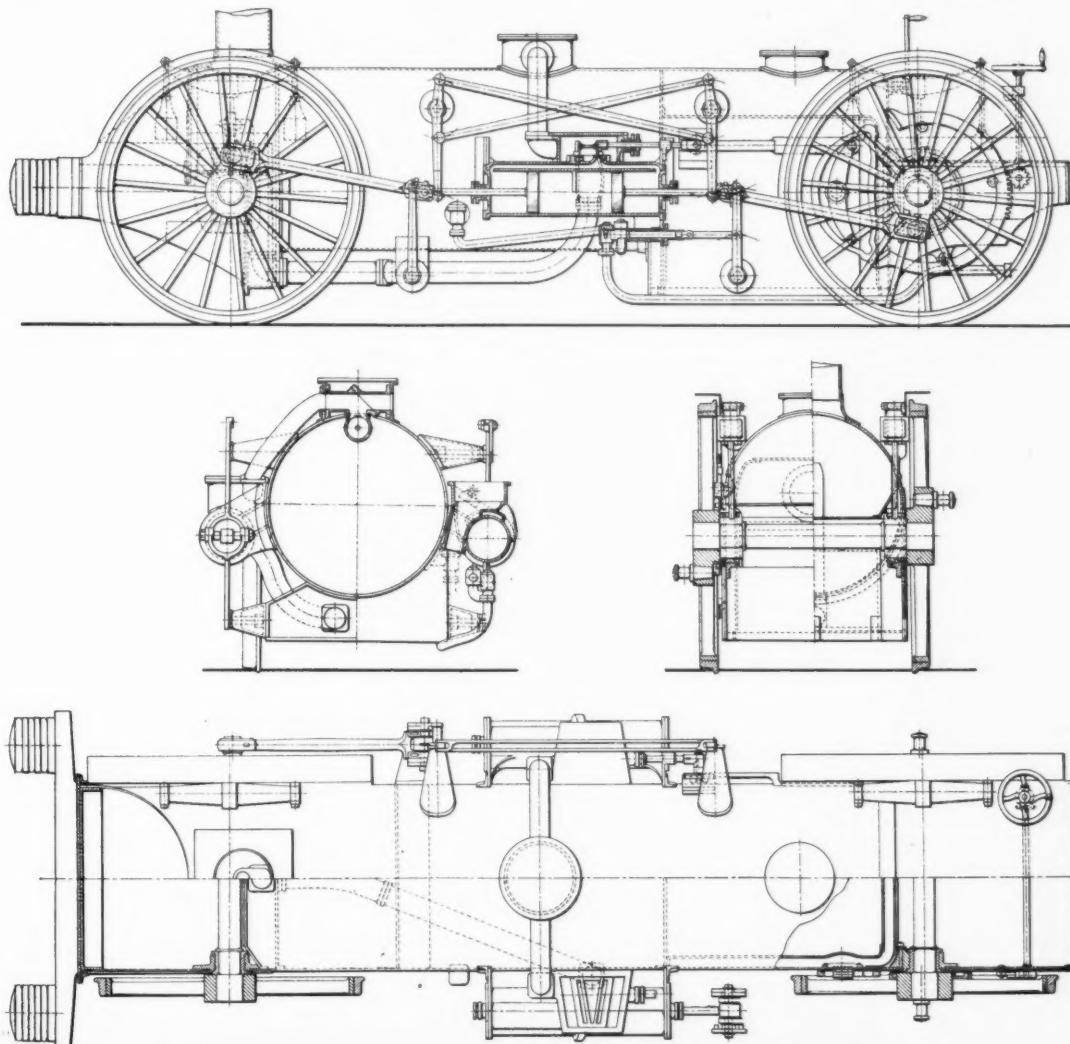
Secondly, it represents an attempt to deal with the problem of the reciprocating balance, very acute at that time, by the provision of an arrangement of opposed pistons.

The exceptionally low centre of gravity is obtained by using the boiler itself as a major part of the main frame, and it will be noticed that the two driving axles are carried from the extension plate frames riveted to the boiler itself. The arrangement of the opposed systems gives complete reciprocating balance, which would obviate the severe hammer blow and/or nosing effects which were so common on the lightweight locomotives of that time. No balance weights appear to be provided for the rotating masses, but this seems to be covered by the opposite position of the cranks on each side of the locomotive, which, it has been noted, have been offset slightly in order to balance the eccentric.

The reversing gear forms an interesting stage between the true gab motion and its final development into the Stephenson link gear. Slidebars and crossheads have been obviated by the arrangements of pins and links shown on the drawing, but the crossed rods attached to the boiler, which serve the same function as coupling rods, do not appear robust enough to deal with conditions where one pair of driving wheels might be subject to slipping.

I can find no record that this locomotive was ever constructed, but it is of considerable interest in showing the trend of thought at the time. Actual construction, as was usually the case, followed more orthodox lines for the sake of operating reliability.

Yours faithfully,
H. G. IVATT
Chief Mechanical Engineer



A Crewe proposal of the early 1840s for an opposed-piston locomotive

The Scrap Heap

We are owners of the railways now. Why do we raise our own fares?—B.B.C. broad-cast joke.

* * *

During the summer the G.W.R. has carried over 21,000 holidaymakers on the picturesque Vale of Rheidol narrow-gauge line between Aberystwyth and Devil's Bridge, an increase of 1,000 over 1946. The line closed on October 4 until next season.

* * *

HA'PENNY DIFFERENCE

Visitors to Radiolympia found it cost 2d. to go from Earl's Court to Addison Road on the L.P.T.B. shuttle service, but 2½d. on the return journey.

This is the explanation: Addison Road is a main-line station. The main lines have got some tickets printed for the increase in fares, which began on October 1. L.P.T.B. has not; they will not be ready until November 1. This means inward journeys from main-line stations cost more than outward journeys from L.P.T.B. stations.

Outward passengers thus get a month's grace. In 1940 when the fares went up they got three months.—From "The Londoners' Diary" in the "Evening Standard."

* * *

UPPER CLASS

With "direction" in the news, I must tell the story of the miners and the bus. A special bus was ordered to take to work and home again some miners "directed" to another colliery, but when it turned up only three men boarded it. After a morning or two it occurred to somebody that the transport authorities might be asked to look into such slight use of a whole vehicle. Some weeks elapsed, but eventually a transport official approached a mining official. "Now, what about this bus that's only carrying three men every day?" he inquired. "The bus?" answered the mining official. "Well, I hardly know how to tell you, but I'm afraid that in future you'll have to send a double-decker. You see, one of the men wants to smoke!"—From the "Liverpool Daily Post."

MINISTRY HOURS STAGGERED

One of the largest moves so far to relieve rush-hour traffic in London has been made by the Ministry of Transport, whose 2,000 workers in Berkeley Square House on Monday began new hours of work arranged to end at 4.45 p.m. and 6 p.m. to avoid the peak period between 5 and 6.

* * *

FREEDOM ISN'T FREE

Freedom, as world events have taught us, isn't free like the air we breathe. It isn't from everlasting to everlasting. It was won by a bitter struggle, and it can be lost with tragic ease. . . .

The lesson of our time is that freedom must be earned, in each generation, by our integrity and ability as citizens. Either we continue to earn it, or we shall wake up some morning to find that it has slipped through our fingers, as it slipped through the hands of so many other people in the world. A dictatorship will have taken it from us. . . .

The duty of the businessman and the labour leader in our community is to make our economic freedoms work. This is a duty they have to the whole public, not merely to their own group or class.—From the *Chesapeake & Ohio's salute to the "Freedom Train" as it began a nation-wide tour of America.*

* * *

100 YEARS AGO

From THE RAILWAY TIMES, Oct. 16, 1847

LONDON and NORTH-WESTERN RAILWAY—CARRIAGE OF PARCELS.—Complaints have recently been made of the detention, loss, or injury of parcels which have been delivered to parties who are not the agents of the Company, nor authorised to collect goods on their behalf, and who pack such parcels along with other parcels before delivering them to the Company for carriage.

By this irregular proceeding the parcels are mixed with goods subject to the Carriers' Protection Act, or of a dangerous or prohibited kind, and the Company thereby become entirely irresponsible for any of the parcels, being unable to take any account of them, or to provide for the delivery of them to the parties to whom they are addressed. The smaller parcels, moreover, when included in bulky packages, and not seen, are not, and cannot be packed or forwarded by the Company, as they would be in their character were known, and so as to ensure their safety and immediate delivery.

With every desire to ensure the safest and most expeditious carriage of parcels, and to afford every information and satisfaction, the Company are, by the practice referred to, rendered unable to do so, and are obliged to give this notice of their irresponsibility where it is resorted to.

The only places at which parcels or goods can be delivered, so as to render the Company in any way responsible to the parties sending them, are their own stations and offices, and those of Messrs. Pickford and Co., and Messrs. Chaplin and Horne, who are their only agents for receiving and forwarding parcels.

By order of the Board of Directors,
MARK HUISH, General Manager.
Euston station, Oct. 13, 1847.

ATOMIC ENERGY TRAIN

A train, designed to show the public the basic facts regarding atomic energy and its implications, will begin a tour of 26 towns in England, Scotland, and Wales on November 10, starting from Chester. The train has been organised by the Atomic Scientists Association.

* * *

"INNOCENT RAILWAY"

Sir Patrick Abercrombie's plan for the remodelling of Edinburgh, includes the diversion of the main railway line from the south, partly by way of the site of the present track which terminates at St. Leonard's. This stretch of line is known locally as the "Innocent Railway." Apparently, the title dates back to the time when this track was used as part of a horse-drawn railway between Edinburgh and Dalkeith. The horse-drawn coaches continued in use long after steam locomotives had become common. This, and the fact that no accident had ever occurred on the line, led to its being given the nickname of the "Innocent Railway"—From "The Scotsman."

CHINESE RAILWAY STORIES—2

By Cyril G. C. Wayne

GLASS WINDOWS

Many of the country people had never seen glass before in their lives, and they used to crash their head through them, not realising there was anything there. The windows of the third and fourth class coaches were painted with three black stripes. Seeing the black stripes they touched them, and so noticed the glass windows.

TRACK WALKERS

Chinese country folk have little or no idea of speed, and it was no uncommon occurrence for the coolie class to jump out at stations where the train was running through at forty and fifty miles an hour, very often with most unfortunate results. Neither did they get off the four-foot way when a train was approaching, and as a result many were killed on this account—one driver made out a message addressed to Control: "have sendee three man top-side one man makee spoil." It must be remembered in this connection that there are few roads in China, and so the poorer classes, if unable to afford the fare by train, used to walk on the track.

In other cases, folk having a spot of bad luck would purposely try and just escape being run over and then turn round and laugh because the devil following them and cause of all their trouble had been killed, but oft-times, being such bad judges of speed, they themselves would get run over and not the devil that was pursuing them.

A CIVIL WAR INCIDENT

Chinese railways are single lines, only a few miles being double track. During the civil wars the railways suffered incredible damage by the interference of the military.

The staff were often forced at the point of pistols to break the most elementary rules of train working, sometimes with disastrous results. The stationmaster at one of the larger stations, however, outwitted a subordinate military officer in charge of troops loaded in 30- and 40-ton goods wagons. This officer persisted that his train must leave at once, although the stationmaster told him that a train was coming in the opposite direction, and if his train started there would surely be a collision and he and his soldiers might be killed.

This did not in the least worry the military man, who again flourished his pistol. Seeing that warnings were of no avail, the stationmaster quietly arranged with the driver of the train for the air brakes to be left hard on the wagons, and cut off the engine. After much wheel spinning, the officer came along to enquire why his order was disobeyed, whereupon the stationmaster produced the printed rule that "Goods wagons must be evenly loaded."

"Now," he said to the officer, "if you look down the train you will see all your soldiers looking out on one side. Please tell them to look out half on this side and half on the other side, and then the engine can pull the train." The wheel slipping was kept up at short intervals, but by the time the officer had told all his men what they had to do, the other train had arrived, and the situation was saved. The officer was very politely thanked, the train started, and everybody was satisfied. The stationmaster reported the incident verbally with a hint that he deserved promotion. He did not dare put it in writing.



OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

SOUTH AFRICA

Artisans' Wage Awards

The Minister of Transport, Mr. F. C. Sturrock, and the executive of the Railways Artisan Staff Association have reached agreement on various questions arising from the report of the Grindley-Ferris Commission, which was appointed by the Governor-General to inquire into and report on railway artisan scales of pay and service conditions.

It has been decided to grant artisans and operatives a service increment of 1d. an hour after five years' qualifying service, and a further 1d. an hour after a further five years. Qualifying service for artisans will begin from the date of promotion or appointment in the service to an artisan grade. For operatives it will begin from the date of completion of an initial period of service of five years in any capacity.

Half the transition allowance of 6d. a day, now paid to artisans and operatives, will cease to be payable when the first service increment is granted. The scales of annual vacation leave to staff classified in the artisan pay schedule will be increased as follows:—

1.—During the first ten years of service the leave granted will be increased from 12 to 15 days a year.

2.—After 20 years' service the leave granted will be increased from 21 to 24 days a year.

These measures are given effect from the beginning of the April, 1947, pay month. The administration will appoint also a departmental committee, on which the artisan staff will have direct representation, to investigate and report on difficulties in the application of the conditions governing bonus work.

Completion of Home-Built Shunters

The first locomotives to be built in South Africa almost entirely from components made in this country are under construction at the Salt River Workshops, Cape Town (see also *The Railway Gazette* of April 18). One engine went into service on October 8, and another will be ready in November. These are the first of 12 heavy shunting engines to be built at Salt River. The components for the other ten engines have been made, and will be assembled after the two prototype engines have been tested to see if any modifications are necessary.

Work on the new "S.1" class locomotives, as they are called, was begun some years ago, but was held up while more urgent jobs were being carried out. In spite of this, it is thought that the cost of each engine, which is estimated roughly at £20,000, will be no more than that of a similar engine imported from abroad. All the latest developments have been incorporated in the design. The boilers are larger than those of the imported "S" class engines, and the new series will be complete with tenders capable of carrying 6,000 gal. of water and 12 tons of coal. The bunkers have been arranged to give the maximum field of view to the rear from the driver's cab.

Because the South African steel industries could not produce the slabs required for the engine bar frames, these and some other components, including tyres, superheater elements, and proprietary fittings,

were imported. All the castings, including the coupled wheels, cylinders, and frame stays, were manufactured in the South African Railways workshops.

New Road Motor Services

Travellers will be able to journey by road from Durban to East London in vehicles operated by the railways' Road Motor Transport services next year. This will be the first link in the chain of road motor services which ultimately will link Durban and Cape Town, and which was forecast by the Minister of Transport at the last session of Parliament (see also *The Railway Gazette* of June 13). In order to provide the Durban-East London connection, a road service will be introduced between Maritzburg and Kokstad, which already is connected to East London via Umtata.

Eight other important passenger services are to be put into operation next year, when it is expected that many of the vehicles on order for the Road Motor Transport organisation will be in commission in all four Provinces. Hundreds of different classes of vehicles, valued at well over £2,000,000, have been ordered, including 100 luxury buses from Canada. The date on which these new services can be begun depends on when the vehicles are delivered. The first batch has reached Cape Town already. The rest are expected to arrive during 1948.

INDIA

Eastern Bengal Organisation

Consequent on the partition of the Bengal Assam Railway (see *The Railway Gazette* of August 29), the Transportation and Commercial Departments of the new Eastern Bengal Railway have been amalgamated, and are administered by a Traffic Manager with headquarters at Chittagong.

The railway itself has been divided into four traffic districts, each under the charge of district traffic superintendents, stationed at Chittagong, Dacca, Lalmanirhat and Paksey.

On account of the long distance between Chittagong and Paksey, a Deputy Traffic Manager has been appointed at Paksey to control the Paksey and Lalmanirhat districts.

Collision on Bengal-Nagpur Railway

The 14 up Howrah-Nagpur passenger collided with the rear of 18 up Howrah-Tatanagar passenger at Kolaghat Station on the Bengal-Nagpur Railway, about 35 miles from Calcutta, on August 27. The impact was so severe that the engine of the Nagpur passenger, after crashing through four rear bogies of 18 up, was derailed, and the locomotive, badly smashed, ended up with half its bulk lying across the platform. The driver and crew, however, escaped with slight injuries by jumping out of the engine before the collision.

A brake van and a third class bogie next to the engine of 14 up were derailed and badly wrecked. Another third class bogie and brake van at the rear of the train were telescoped. The four bogies of the 18 up, which were reduced to a tangled mass of wood and metal, were a railway saloon, a combined luggage and postal van, and two third class bogies. One upper class bogie immediately in front of

these vehicles was thrown off the track on to the down line. In the saloon, which was the last vehicle on the Tatanagar passenger, were Mr. S. K. Tubby, Deputy Chief Engineer, B.N. Railway, his wife, and two orderlies. Mrs. Tubby and one of the orderlies were killed, and Mr. Tubby and his other servant were injured seriously.

BURMA

Progress on Moulmein Branch

After the completion of repairs to a bridge between Panga and Karokpi, the Panga-Anin section of the branch to Moulmein was re-opened for goods traffic by diesel trains on July 28. The bridge is not yet safe for passenger services.

Increased Passenger Services

On August 9, the Burma Railways increased the passenger services on the Rangoon-Insein, Rangoon-Thingangyun, and Rangoon-Kanbe lines by one train a day in each direction.

Improved Branch-Line Stock

A steady improvement is being maintained in the condition of coaches used on branch-line passenger services. Upper class accommodation has been restored recently on the Myitkyina-Mohnyin section. The introduction of vacuum-braked vehicles has enabled the speed of certain trains to be improved.

Signal Wire Experiments

Successful experiments have been carried out by the Signal & Telegraph Branch with the use of ordinary fencing wire to operate signals; and at the same time they have dispensed with signal pulleys. The results of these experiments will be of value to the railways in the present acute shortage of signal wire and signal pulleys.

VICTORIA

Train Cruises Resumed

In May and June this year the Victorian Railways operated for the first time since 1939 a "Reso" train tour from Melbourne to Darwin via Alice Springs. Similar tours left Melbourne for Darwin weekly from June 10 to September 23, each covering an itinerary of 5,500 miles.

The "Reso" tours were inaugurated in 1922 with the intention of familiarising urban dwellers with conditions in the more remote parts of Australia. The name "Reso" is a contraction of "Resources." A description of one of the trains built for these tours was published in *The Railway Gazette* of August 24, 1934. This year, trains of ordinary stock have had to be used, but special arrangements for the comfort of passengers were made by the three railway systems co-operating in the itinerary between Melbourne and Darwin.

WESTERN AUSTRALIA

Royal Commission on Railway Workshops

A Royal Commission, consisting of Mr. A. J. Gibson, of the Queensland engineering firm of Julius, Poole & Gibson, has been appointed to inquire into the management, working, and control of the Midland Junction railway workshops, and the supply of local coal to the Western Australian Government Railways.

In opening the inquiry at Parliament House, Perth, on July 7, Mr. Gibson said: "It is not in any way my desire or intention to direct the inquiry towards the censure of any individual or group of indi-

viduals within the railway organisation. If, during the course of the inquiry, it becomes evident that censure or praise is deserving on the part of an individual or groups, that censure or praise will not be withheld."

The Royal Commissioner is taking evidence from departmental officials and others regarding various aspects of the workshops, and the interests of the Commissioner of Railways are being watched by Mr. P. C. Raynor, Personal Assistant to the Commissioner; the unions concerned are represented by Mr. T. G. Davies, Secretary of the Western Australian Branch of the Australian Labour Party. The Government has intimated that at the conclusion of the workshops inquiry, a further Royal Commission, consisting of Mr. Gibson and Mr. D. H. C. Du Plessis, of the South African Railways, will inquire into the general working and management of the railways.

BRAZIL

New Stock for Central Railway

One of the largest orders yet handled by a foreign firm was placed by the Central Railway with the Budd Company, of Philadelphia, U.S.A., a short time ago. When the Superintendent of the Central Railway was present at the United Nations Conference on Transport & Communications at Lake Success, the opportunity was taken of examining possibilities of acquiring rolling stock for the Central Railway. As a result, some 63 all-steel passenger coaches were ordered for quick delivery.

The order comprises sleeping and restaurant cars, luggage and mail vans, and observation cars, similar to those supplied to the principal U.S.A. railways. Air-conditioning and fluorescent lighting installations are provided in all vehicles.

The coaches will be made at the Budd Works, Red Lion, and shipped to Brazil

fully assembled. On arrival, they will be placed in service between Rio de Janeiro, San Paulo, and Belo Horizonte. Some of the coaches will have accommodation for 76 passengers, and others, fitted with bed-sofas for day or night travel, will accommodate 56. The sleeping cars will have a capacity for 24 passengers.

UNITED STATES

Rock-Fall Detectors in C.T.C.

A recent C.T.C. installation between Radford, Virginia, and Bristol, on the Norfolk & Western, includes apparatus for giving warnings of falls of rock where the line passes under high cliffs. A fence erected at the lineside is arranged so that if struck by a piece of falling rock a trigger is released, and the circuit controlling signals in the vicinity is opened. This has the effect of setting the signals to danger. When a train is held up in this way the crew walks along the line to find the place where the fall has occurred, and makes a telephone report to the train despatcher. A signal linesman must be called to restore the controller to its normal position.

This C.T.C. installation is 108 miles in length, of which 106½ miles are single track. When the installation was made the opportunity was taken of replacing the former semaphores with position-light signals.

FRANCE

Transport Council Reconstituted

Rail and road co-ordination in France and its overseas territories is the most urgent problem to be dealt with by the new Supreme Council of Transport (Conseil Supérieur des Transports) now in course of formation under a Law voted by the French National Assembly on August 11. This council really reconstitutes the first Supreme Council set up

on August 31, 1937, and replaced on December 11, 1940, by a General Council of Transport, which fell into abeyance when the Germans invaded France. The new council, like its predecessors, will have no administrative powers, but will be a consultative body. Its first task, to be achieved within a year at the latest, as set forth in Article 3 of the Law, is to draft a "plan for the co-ordination and harmonisation of the various means of transport."

Membership and Functions

Seven commissions will be formed by the council for the various co-ordination schemes. The first commission will deal with rail and road co-ordination. The council itself will have 69 members, 23 representing Government departments, 15 the transport firms, 15 the transport workers, and 15 the transport users and members of Parliament.

The Minister will be President of the council, and will designate one of the members as Vice-President. The council will have five sections, dealing with railways, roads, inland waterways, seaborne transport, and airborne transport.

EIRE

Improved Refreshment Services

Dining car facilities were restored on 20 main-line trains during the summer, serving the following routes: Kingsbridge to Cork, Waterford, and Limerick; Westland Row to Westport, Wexford, and Sligo; and Harcourt Street to Wexford. A service of tea-boxes also was introduced on all the trains concerned. Most main-line passenger trains were filled to capacity, and passengers sometimes were unable to find accommodation in the refreshment cars. The boxes were served in the compartments by the dining car attendants, and contained sandwiches, fruit, and chocolate, together with tea or coffee.

Publications Received

Standard Gauge Light Railways. Second Edition. By R. W. Kidner. (Light Railway Handbooks No. 4). Chislehurst, Kent: 30, White Horse Hill. 7½ in. x 4½ in. 31 pp. Illustrated. Paper covers. Price 2s.—A second edition has appeared of this booklet, which was first published in 1937. Small undertakings built in early years and not absorbed by larger railways are dealt with, as well as lines built after the 1896 Light Railways Act, which sought to foster the development of such lines. Standard-gauge light railways associated with the name of Colonel Stephens, among which are the Kent & East Sussex and the East Kent Light Railways, have not been included, as they are covered in the first booklet of the Light Railway Handbooks series.

The Stock Exchange Official Year Book, 1947. London: Thomas Skinner & Co. (Publishers) Ltd. Gresham House, Old Broad Street, E.C.2. 10 in. x 7 in. x 4½ in. Pages i to clxxxiv and 1 to 3482. Price £5. Including postage (British Isles) £5 1s. 6d.; (Europe) £5 3s. 9d.; (U.S.A. and Canada) \$25; (elsewhere) £5 5s. 6d.—This issue contains 300 pages more than its predecessor, mainly because of the inclusion of notices of 218 additional companies and 31 new Government and municipal loans, and the reinstatement of details of capital history omitted from it since 1940 because of war conditions. The commercial and industrial classified

list also has been reinstated in a new and enlarged form. It is now inserted after the index, and includes the names of some 2,700 companies whose securities are dealt with in the book itself. Particulars of the Coal Industry Nationalisation Act, 1946, are given at the beginning of the Steam, Coal & Steel section, and an outline of the proposals for the transfer to public ownership of the transport services, and electric supply industries is given in the British Railway and Electric Lighting & Power sections respectively. The article on double taxation relief in the general information section has been revised, showing the effect of the agreement reached with the United States of America, Canada, South Africa, Australia, and Southern Rhodesia. The present issue of the Stock Exchange Year Book is already out of print, and no further copies can be supplied.

Crucible Cast Steel.—For more than two centuries Sheffield has consistently produced crucible steel, which, despite the more recent mass production of special steels by other methods, still enjoys a world-wide reputation for reliability and fine quality, especially for the manufacture of precision tools, high-speed tools, and delicate edged tools of various kinds. This brief monograph published by John Vessey & Sons Ltd., Denby Street, Sheffield, deals with a complex subject in non-technical language, outlines the history of iron and steel up to the time of the invention of crucible steel, and gives a clear

idea of the importance of crucible steel for many types of products, the range of which has become very wide.

Oxygen Cutting Manual.—The purpose of this new publication by Hancock & Co. (Engineers) Ltd., Croydon, is to provide operators of oxygen cutting machines in general with fundamental working data, and to assist them by means of practical hints regarding the more common faults and difficulties they may meet. This very comprehensive booklet, which contains many useful photographs and diagrams, is intended to supplement rather than replace the general operating and maintenance instructions issued by Hancocks with their main machines.

"Electrical Industries" Graded Supply Map of England and Wales.—This map, which has been compiled by *Electrical Industries* and published by the Electrical Press Limited, 23, Great Queen Street, London, W.C.2, shows areas of authorised distributors, output of undertakings (excluding traction and bulk supplies), and consumption per head of population per annum. A transparency published in connection with this map, when used alone, enables the position of the selected stations and their inter-connecting grid lines to be seen in relation to the proposed Area Electricity Boards; when laid over the other map, the transparency gives an indication of the various municipal and company areas falling under the control of the proposed boards.

American Railway Research

Findings of the Railroad Committee for the study of transportation

IN our issue of September 8, 1944, we explained at some length the arrangements which the Association of American Railroads made in 1942 for conducting an exhaustive inquiry into the post-war economic and transport situation. A Railroad Committee for the Study of Transportation was set up under the direction of Mr. R. V. Fletcher, now Special Counsel, A.A.R., with a view to determining what policies and programmes should be adopted in the interest of the railway industry.

This Committee began by organising 15 sub-committees and remitting to each of them particular questions for investigation. The findings of these bodies have been published from time to time in no fewer than 160 reports, dealing with diverse matters of which accounting and statistics, air, highway, pipeline and water transport, traffic developments, public relations and economic research are but a few examples.

These reports are stated to have been used with good effect by many of the U.S.A. railways. Their contents and the conclusions of the main committee have been summarised in a volume of nearly 400 pages entitled "Transportation in America."*

Mr. W. T. Faircy, President, A.A.R., considers that the book constitutes by far the most comprehensive survey of railway problems and activities that has ever been undertaken. It is claimed that the committee carried out its task "in a spirit of earnest inquiry, embracing nothing as superior merely because it is new, but clinging to nothing old merely because it is established." In this article we propose to give an abstract of the general principles formulated by the committee in the course of its sittings.

Need for Transportation Companies

The final report starts with the heartening declaration that within the predictable future the U.S.A. will continue to depend on railways as the one indispensable mode of transport. Assuming the adoption of sound economic policies by the legislature, the railways for the next three or four years should have traffics above the pre-war level. With the coming of the internal-combustion engine, the aeroplane, the pipeline, and the Panama Canal, together with government expenditure on highways and inland waterways, competition will be intense. The transport situation will be improved if, instead of having railway, air, road and water carriers, there existed transport companies authorised to furnish the public with any type of service required.

The railways justifiably complain about the unequal treatment accorded them in the matter of public aids. Railways provide and maintain their own ways and structures, besides contributing to the general governmental expenses, including the cost of subsidies to air, road, and water transport. If these subsidies are to run on, the people who benefit should pay adequate sums for the facilities they receive.

This subject is connected with the need for a uniform policy of regulating transport. At present air transport in the States is regulated and developed by the

Civil Aeronautics Board and also by the Civil Aeronautics Administration, Department of Commerce, with the result that large sums of public money are spent annually in reducing the cost of flying. The A.A.R. committee urges that all types of transport should be controlled along the same lines of policy by one administrative agency, so that each will have fairplay and be encouraged to do the work for which it is inherently qualified.

Passenger Traffic

For passenger conveyance, the private motorcar outshines all the American commercial carriers, accounting for 85 per cent. of the total inter-city travel between 1937 and 1941. A great change in travel habits took place in the 21 years from 1920 to 1940. The total movement, expressed in passenger-miles, increased 460 per cent., but the combined share of railways, buses, and airlines decreased nearly 25 per cent.

In 1940 the railways worked under half their 1920 passenger-mileage and during the years preceding the war, their passenger revenue declined to about 10 per cent. of total railway operating revenue. The committee recommends that the railways should aim principally at recapturing from the private motorcar and the public bus traffic over fairly long distances or between large cities.

The committee found that faster train service has in general proved to be remunerative, both by increasing traffic and by saving equipment and manpower. It says that what is tantamount to a revolution has taken place in sleeping car and parlour car amenities, though particular attention is also being paid to the welfare of ordinary coach passengers. Wisely, it gives a hint that, in creating new concepts of travel comfort and convenience, "the sobering consideration of increased construction costs cannot be disregarded." The warning is well timed, as passenger service on the U.S.A. railways produced a deficit of \$139 million last year and the prospect is for an even greater deficit in 1947.

Freight Traffic

With few exceptions, U.S.A. railways depend on freight traffic to produce the revenue they need to cover expenses and pay moderate dividends. An article in our September 12 issue discussed progress in freight working arrangements, explaining how the railways were meeting the demands of traders for promptness of movement at reasonable charges. The committee's report does not add a great deal to the information already circulated. The committee has, however, examined every commodity furnishing a large tonnage to the railways, considering the location and peculiarities of the traffic and the methods of handling it. These inquiries did not reveal any reason to believe that the railways would lose to their competitors any considerable amount of pre-war business.

The committee thinks that the railways can expect to move about two-thirds of all the freight traffic in the United States, measured in ton-miles. As one means of retaining custom, most railways have a separate organisation for expediting and directing both wagon load and less-than-wagon-load freight. The core of their communication system is the teletype,

which keeps the commercial departments in contact with traffic in transit. Another point stressed by the committee is the attention paid to industrial and agricultural development. Not only is information provided about sites for works and economic factors affecting their territories: the railways also undertake to promote siding facilities, as well as to find new sources of raw materials and new markets for industrial products—if necessary, by adjusting rates.

Plans have been drawn up from time to time for the amalgamation of the railways into a small number of systems. There were, for example, a scheme for establishing four large systems in Eastern Territory and 19 or 20 for the whole country. These plans have been pigeon-holed, but the railways have not overlooked consolidations which would bring about economies and so be in the public interest. In 1920 there were 186 Class 1 railways, having an operating revenue of over \$1,000,000; in 1940 there were 133. In the judgment of the committee, the wise policy will be for the carriers to work out desirable amalgamation schemes and submit them to the Interstate Commerce Commission for approval. In other words, the railways prefer voluntary to compulsory "grouping."

Financial Situation

The committee then comes to the main question of how the railways may serve the public efficiently and remain solvent. If they are to attract private capital in order to keep their facilities up-to-date, they ought to earn an average rate of return of 6 per cent. on their property investment. Since 1921 they have done so only in the war year 1942.

For the year 1946 the return was no more than 2.74 per cent. For every dollar paid out in dividends during the 25 years 1921-45, the railways invested two dollars in improving their properties. During the war they reduced the funded debt by \$1,968 million and so brought down their fixed charges by 30 per cent. The committee feels that the railway future is far from discouraging, provided that the companies are permitted to earn the fair rate of return of 6 per cent. suggested Reform in the existing tax system would help.

In a typical year the railways paid nearly 3 per cent. of their gross revenues for State and local taxes; airlines were mulcted of little more than 1.5 per cent., and water-lines escaped almost scot-free. Again, the railways pay for retirement and unemployment benefits 8.75 per cent. of their payrolls, while ordinary industry, including other types of transport, pays only 2.7 per cent. Perhaps the best hope of righting these inequalities is for the railways to develop public relations and broadcast the reasons for adopting particular policies.

The committee goes so far as to say that "the success of the railroads in the long run depends on the extent to which they are regarded by the public as good citizens, good neighbours and good servants. For this reason, no problem to which chief executives of the railroads devote themselves is more important than encouragement of sound public relations."

This brief commentary on the stout volume before us may convey some idea of the subjects which the committee has studied in detail and of the conclusions which it has reached. The A.A.R. can take credit for compiling a virtual encyclopaedia of transport. The report on Highway Transport, for example, has been hailed as the best source of information for anyone interested in the problems that

* "Transportation in America: Report of Railroad Committee for the Study of Transportation," Copyright, 1947, by the Association of American Railroads, Washington, D.C., U.S.A.

arise from the use of private and public road vehicles. The reports on Air Transport are also thorough.

On more original lines, the report on "Economic and Transportation Prospects" analyses the structure of the national economy of the U.S.A. and is replete with facts about the country's resources and business activities. For the clear presentation of figures it would be difficult to beat a "Statistical Record of Railroad Transportation in the United States," prepared by the Bureau of Railway Economics, A.A.R., for the use of the sub-committee on Economic Study. All these documents, as well as other reports of substance, are printed for general circulation.

We unstintedly admire the industry which has produced this far-reaching study of "Transportation in America." We confess, however, to some disappointment at the absence of new ideas in the final report.

At the end of five years' toil and trouble, one would have expected some suggestions for the adoption of fresh methods to emerge. On the contrary, there is little in the shape of criticism, and the report amounts, by and large, to a justification of existing practices and policies sponsored by the A.A.R. But at least the American railways have come into the open and, by telling the public frankly what they are agreed in thinking, have put

our Railway Companies Association in the shade. Five years ago the Association set up a planning committee, but we have not seen a single report of its deliberations. A policy of secrecy has been followed in contrast to the American custom of letting the public know the outcome of the inquiries which were afoot. It will now be for the British Transport Commission to consider the problems which appear to have baffled the railway planners. One effective way of making progress might be for the Commission to set up a research service which would be independent of the Railway, Road, and Dock Executives, but would make use of all statistics and general information these bodies can supply.

Snow Cornices and the Design of Railway Station Roofs

Snow-cornice development may result in considerable overload on roof structure
By Donald L. Champion, F.R.Met.S., A.M.I.R.S.E.

IN view of the increasing tendency towards heavier winter snowfalls in the British Isles, it may be worth while for engineers to give some consideration to the exceptional loads on roof structures due to the formation of snow cornices. Snow cornices are formed by eddies on the lee side of ridges whose angle of slope to windward, lies within well defined limits, the six-rayed snow crystals caught in the eddies being flung up into the calm space immediately in front of the ridge. There they hook on to the crystals already fallen on the face of the ridge, and the cornice gradually extends as further crystals adhere until full development takes place.

Cornice development does not commence

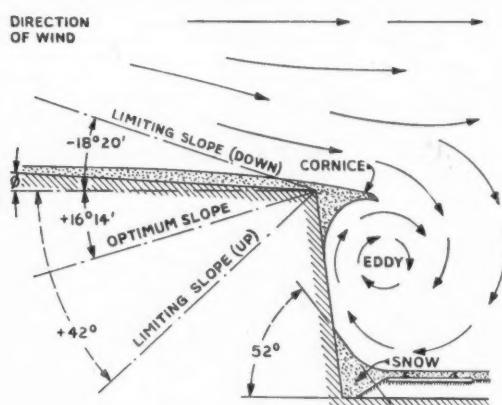
side of a railway cutting is shown in the diagram below. According to Welzenbach* cornices will form when the angle of the windward slope ϕ lies between the limits of $+42^\circ$ and $-18^\circ 20'$ min. and reach a maximum development when the angle of slope is $+16^\circ 14'$ min. The snowfall beneath the cornice eddy will tend to pile up at the natural angle of 52° deg. irrespective of the shape or size of the cornice which vary with the angle ϕ .

Falls of one foot of snow on level ground are by no means uncommon, and recently falls up to 18 in. have been of frequent occurrence in the Midlands. It is interesting to observe the probable cornice development on a typical roof, such as is

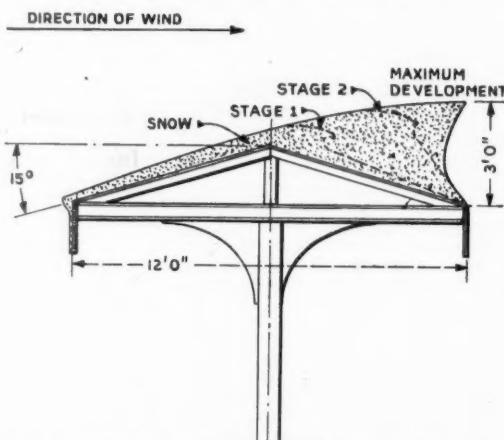
conditions are shown in the diagram reproduced as applied to a platform room 12 ft. wide; the contours of cornice growth also are indicated, and the actual growth depends on the strength of the wind and the intensity and duration of the snowstorm.

It will be seen that with a level fall of about a foot the cornice may, in extreme cases, reach a height of 3 ft. from the eaves on the lee side, resulting in a considerable over-load on the roof structure on the lee side of the supporting columns.

The specific gravity of snow varies between wide limits, that of "dry" snow is only 0.065, whereas the specific gravity of snow in cornices is normally about 0.442. Thus, the additional weight on the roof due to the cornice shown in the diagram, is about 225 lb. per lineal foot, that is about 30 tons per 100 lineal yards of roof. The wider the roof, the greater is the mass of the cornice formed, so it will be apparent that unless due allowance is made for the weight of snow cornices, in addition to that made for level falls, a flat roof with



Typical cornice development on the side of a cutting



Probable cornice development on an island station roof

unless the wind is within 60 deg. either side of a line normal to the ridge of the roof, and no large cornices will form unless the wind is more or less at right angles to the line of the ridge.

A typical cornice development on the

common on island platforms, when the wind is normal to the ridge of the roof, and the pitch of the latter is near the optimum angle for cornice formation. These

* See Seligman, "Snow Structure and Ski Fields." London, 1936

slight camber is preferable to a low pitched roof. Alternatively, a pitch of about 45 deg. might be provided in roofs of this type, over platforms which are exposed to the combined effects of side winds and moderate snowfalls.

ALASKA RAILROAD DEVELOPMENT PLANS.—Details have been announced of a \$34 million rehabilitation and building programme, to be spread over a period of from three to five years, by the Alaska Railroad. The work will include restora-

tion of track and roadbed, improved alignment, and new bridges. The terminal arrangements at Anchorage and Fairbanks will be extended. This railway, which was taken over by the U.S. Government in June, 1923, operates 513 route-miles of

standard-gauge line. During the 1939-45 war a new 12-mile cut-off was constructed to a terminus at Whittier, which had the result of reducing the distance from tide water to the interior of Alaska by 52 miles.

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Electronics in the Restaurant Car

Efficiency of cooking by high-frequency currents permits saving of weight and more convenient layout of vehicles

CONSIDERABLE use is being made already of radio-frequency currents for industrial heating purposes. In these applications the frequencies normally are in the neighbourhood of 1 Mc/s. Much higher frequencies, falling within the range used by wartime radar, have been adopted in the United States for cooking, making use of the latest technique in the generation of centimetre wavelengths. Heating by electro-magnetic induction has the advantage that the temperature of food is raised without overheating the atmosphere of the room in which it is prepared, and the concentration of the energy where it is required greatly accelerates the time required for cooking.

Apparatus has been developed recently which lends itself to installation in railway restaurant cars, and at a recent meeting of the New York Railroad Club, several speakers described the new process and its influence on the future of restaurant car design.

Compactness and Time Economy

Mr. A. E. A. Welch, Manager of the Radarange Division of the Raytheon Manufacturing Company, described the latest type of Radarange electronic oven, in which unit the oven dimensions are 13 in. wide, 14 in. deep, and 15 in. high. A series of experiments with this apparatus has shown the economy of time achieved, such as the ability to cook a 10-oz. steak in from 50-60 sec. Mr. Welch was of the opinion, however, that the supply of pre-cooked frozen foods will increase rapidly in the near future, and that the Radarange will find its most useful application in the reconstitution of such foods.

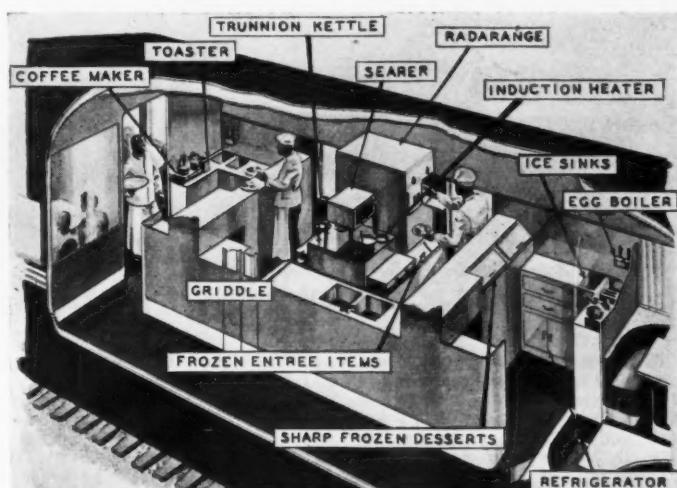
Several technical considerations have to be taken into account in connection with the use of electronic cooking in restaurant cars. Present designs of range take a maximum of 30 amp. at 230 V. a.c., although the actual voltage limits, obtainable by adjustments on installation, range between 194 V. and 246 V. In addition to electrical connections, the Radarange requires a water supply to cool the magnetron oscillator. Approximately 1½ quarts a minute require to be pumped through the jacket surrounding the cathode, and in a dining car installation it will be necessary to re-circulate a certain amount of the

water, which in a stationary installation would be passed to a drain and not used again. Against these special installation requirements can be set the very high efficiency of the electronic cooker. Mr. Welch stated that 42 per cent. of the electrical power taken from the mains was converted into heat, whereas normal elec-

dining car. It would be possible to make the kitchen section only 13 ft. in length, whereas the corresponding portion of a standard restaurant car occupies from 26 ft. to 28 ft. In the dining car shown, two pantries and two steward's desks were incorporated with the kitchen compartment, the whole occupying some 21 ft.

Central Kitchen

A central position for the kitchen and pantries is practicable in an electronic car because the usual kitchen problems of ventilation and expelling hot air do not exist,



Kitchen equipped with Radarange high-frequency cooker

tric ranges are considered usually to have an efficiency approximating to something between 3 and 7 per cent.

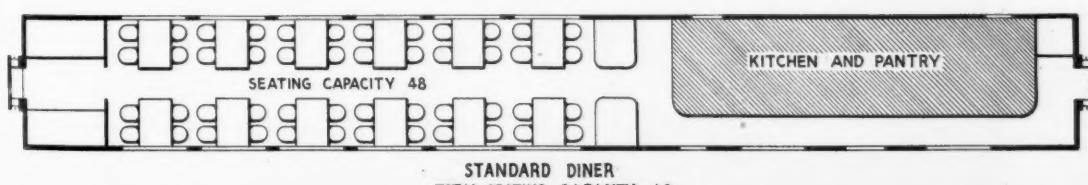
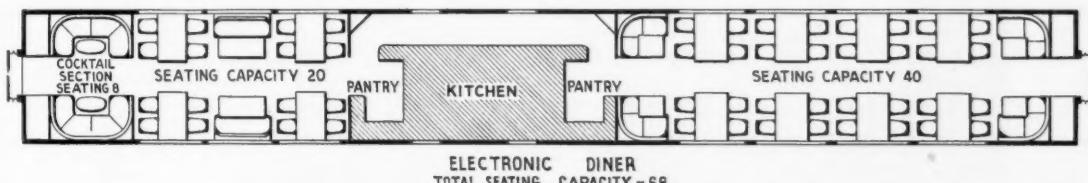
Practical considerations of restaurant car design to accommodate these new electronic cookers were discussed by Mr. E. D. Campbell, Vice-President in Charge of Engineering, American Car & Foundry Company. He considered that the speed of preparing food would enable from 60 to 68 diners to be accommodated every 25-30 min., compared with 48 every 35-45 min. in a conventional restaurant car. Extra seating space, available by reason of the compact kitchen and pantry layout, might enable the use of a second restaurant car to be dispensed with.

Mr. Campbell showed illustrations of the proposed floor plan for an electronic

and, therefore, it is not necessary to provide an insulating space between the cooking accommodation and the passenger seating section of the car. In addition, the central location of the kitchen speeds up the service of meals by reducing the distance the stewards have to walk; and, from the constructional viewpoint, it ensures a better distribution of weight in the vehicle.

For the rolling stock designer, it makes easier the achievement of an exterior appearance conforming with that of other vehicles in the train, which is an important point in connection with high-speed services using distinctive rolling stock.

The kitchen windows of disproportionate size required in a restaurant car



Comparison of seating arrangements in restaurant cars with standard and electronic cooking

with conventional cooking facilities, are not necessary when electronic cooking is adopted.

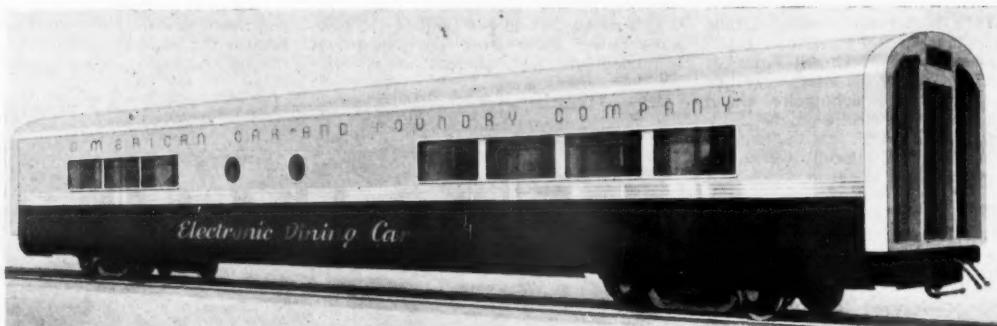
Mr. Campbell elaborated his remarks on weight distribution, saying that the heavy concentration of load on one bogie in a vehicle with an end kitchen made balancing so difficult that the standard type of car was

kitchen to that required for cooking, providing a separate pantry half way down the car, on one side of the dining area, in which to keep crockery and refreshments.

Mr. Campbell said it was difficult to estimate the reduction in weight obtained by the use of electronic dining car equipment, because no such cars had been equipped yet, but a conservative estimate

studied long before electronic cooking had been considered, and it was receiving serious consideration both by railways and the suppliers of electrical equipment.

Mr. Campbell exhibited slides of the proposed interior design for an electronic dining car with central kitchen. One end of the car was laid out as a cocktail lounge, divided by a bulkhead from the



Proposed exterior design for an electronic restaurant car, showing how the small windows of the central kitchen leave scope for applying the uniform decorative schemes characteristic of the vehicles of many high-speed trains

liable to exhibit "nosing" tendencies, especially when rounding sharp curves. A central kitchen, he said, was bound to provide improved riding qualities, and it was a characteristic of vehicles with the weight located in the centre that "nosing" tendencies were relieved. If some railways specified an end kitchen, it still would be possible, with the electronic equipment, to achieve a saving in weight, and it would be feasible to confine the equipment in the

was a saving of 30 per cent., or approximately 6,000 lb.

Comparing the electrical loads imposed by a standard dining car and an electronic type, Mr. Campbell showed that they were 60 kW. and 59.6 kW. respectively. Already some standard cars were on order which would be provided with two 25-30 kW. generators for their electrical requirements. The problem of furnishing more electric power for modern trains, in fact, had been

cafe section. These two sections together provided seats for 28 passengers, partly on sofas and partly on chairs. Beyond the central kitchen there would be the dining section, seating 40 passengers at 12 tables, 4 tables accommodating two passengers, and 8 tables being for 4 passengers. Throughout the car, in keeping with its modern technical equipment, it was proposed to use the latest types of material for furnishing and lighting.

Assistance for Native Passengers in South Africa



Native commissioner, Johannesburg Station, South African Railways & Harbours

Weather Forecasting for Railways

A daily service enabling early measures to be taken to combat the effects of ice and fog



Operators receiving international weather news by radio

Photo

["The Farmer & Stockbreeder"]

EXPERIENCE last winter emphasised to a degree unusual in this country the effects of weather conditions on railway travel. The maintenance of electric services, in particular, depended on early steps being taken to prevent the accumulation of ice and snow on conductor rails, but steam working, also, was liable to delay by frozen points and signalling apparatus. Reference was made in our January 3 issue to the frost warnings supplied to the Southern Railway, which is a service of Imcos Limited, 200, High Holborn, London, W.C.1, and was in operation from December 21, 1946, until March 21 this year. Beginning in November, Imcos is undertaking also the supply of weather information to the Great Western Railway, with particular reference to the probability of fog.

The Imcos forecasts are prepared in the company's laboratory at 29, Clarges Street, London, W.I. A 24-hr. radio watch is maintained by operators working in shifts of three, who receive the regular meteorological broadcasts from stations in Europe and North America. Every broadcast is an assembly of data from numerous weather stations and ships, so that a detailed picture is obtained of conditions over an area extending from the Ural Mountains to the Mid-West of America. Messages are sent in the international synoptic code, consisting of five-figure groups, and include the following information: place of observation; weather conditions; amount and type of cloud; wind speed and direction; weather in last three hours; barometric pressure; and temperature.

In the forecasting room the information received by radio is plotted in the form of symbols on a weather chart, one of which is prepared to show conditions over the whole of the Atlantic and Western European area every twelve hours, at midnight and midday. Some of the Imcos radio operators are able to translate the Morse code signals immediately into their corresponding weather map symbols, and plot them straight on to the weather charts, a double mental conversion which is all the more remarkable considering that the

speed of transmission is 30 words a minute. A weather chart of Great Britain and

adjacent areas is plotted every three hours from information received from Western European stations.

When all information has been plotted on the chart, preparations for forecasting are completed by drawing isobars (lines joining points of equal barometric pressure), from which the direction of movement of air masses is deduced. The chart then shows the areas where masses of air at different temperatures are meeting, and these are coloured distinctively so that on comparing successive charts the speed and direction of movement of these "surfaces of discontinuity" is apparent at once. Reports from ships or land observing stations in the areas concerned assist in forecasting the weather to be expected in the path of the front (to use the name made more familiar by weather reports).

Extensive Weather Records

In addition to reports of current conditions which are being received continuously, the Imcos laboratory keeps records of the weather on every day since January 1, 1899, both in the form of bound volumes of weather maps, and on a chart where the general conditions are shown by coloured symbols. A comparison of present weather with similar tendencies in previous years therefore can be made rapidly, and the probabilities of its persistence or change assessed.

This valuable library of reference data is used by Imcos in compiling the special Weather Surveys which the company fre-

SOUTHERN RAILWAY ICE SERVICE																															
Forecast for the night of 27TH-28TH FEBRUARY, 1947.																															
Issued - Date 27TH FEBRUARY, 1947.																															
Telephoned at 19.05 hrs																															
Initials L.W.G.																															
No.1. Air Temperature																															
A. Air Temperature will remain above 32°F until night.																															
B. Air Temperature will be 32°F or below but with no mist or fog.																															
C. Air Temperature will be 32°F or below with mist or fog.																															
No.2. Air Temperature																															
<table border="1"> <thead> <tr> <th colspan="2">Area 1</th> <th colspan="2">Area 2</th> <th colspan="2">Area 3</th> <th colspan="2">Area 4</th> </tr> <tr> <th>Op (D)</th> <th>Time (E)</th> <th>Op (F)</th> <th>Time (G)</th> <th>Op (H)</th> <th>Time (I)</th> <th>Op (K)</th> <th>Time (L)</th> </tr> </thead> <tbody> <tr> <td>29</td> <td>03.00 hrs</td> <td>27</td> <td>03.00 hrs</td> <td>29</td> <td>03.00 hrs</td> <td>27</td> <td>03.00 hrs</td> </tr> </tbody> </table>								Area 1		Area 2		Area 3		Area 4		Op (D)	Time (E)	Op (F)	Time (G)	Op (H)	Time (I)	Op (K)	Time (L)	29	03.00 hrs	27	03.00 hrs	29	03.00 hrs	27	03.00 hrs
Area 1		Area 2		Area 3		Area 4																									
Op (D)	Time (E)	Op (F)	Time (G)	Op (H)	Time (I)	Op (K)	Time (L)																								
29	03.00 hrs	27	03.00 hrs	29	03.00 hrs	27	03.00 hrs																								
D,F,H,K:- Minimum that will be reached during the night.																															
E,G,I,L:- Time at which temperature will fall to 32°F.																															
No.3. Special Warnings, viz: Freezing Rain, Snow Falling, Snow Lying.																															
RISK OF SNOW IN S.E. ENGLAND LATE IN NIGHT.																															

No.4. Opinion on Icing Risk (Quoting area if necessary).																															
MODERATE ICING RISK - AREAS 1, 2, and 3.																															
SLIGHT ICING RISK - AREA 4.																															
(CONSIDER AREA 3 AND COASTAL SECTIONS OF AREA 2 PRESENT)																															
THE GREATEST POSSIBLE RISK TONIGHT.)																															
No.5. Other Remarks, e.g. Break in freezing, thawing of snow, spell of no icing, spells of strong icing risk, etc.																															
For information																															

Specimen weather forecast prepared for the Southern Railway last winter

quently is commissioned to prepare. A recent example has been a report for an air charter company on the relative suitability for its headquarters of three air-fields in the London area from the points of view of average visibility, cloudbase, and incidence of fog. Similar research might be conducted on behalf of a railway company in connection with projects for installing A.T.C. apparatus on sections where fog conditions are frequent.

The warnings of icing risk and snow for the Southern Railway covered four areas into which the system was divided for forecasting purposes (see accompanying map). They were transmitted by telephone to the Electrical Controller at 7 p.m. every evening during the currency of the service, and covered the period from dusk to 6 a.m. Reports are made in a standard vocabulary of phrases, which minimises the amount of transcription to be done by the receiving telephonist, as well as the chance of misunderstandings. Icing risks, for example, are stated in the following terms:—

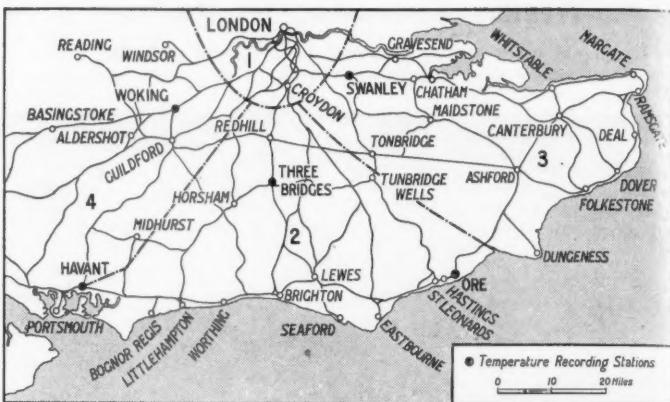
Term	Meaning
No icing risk	Either temperature will remain above 32° F., or the air is very dry and no precipitation.
Slight icing risk	Usually given when temperature is expected to fall below 32° F. with only mist developing, i.e., fairly dry air.
Moderate icing risk	Usually given when temperature expected to fall below 32° F. with fog developing.
Strong icing risk	Almost always given when a fall of snow or freezing rain is expected.

The reports are copied on to a standard form, parts of which can be completed on the principle of "striking out which does not apply," but provision is made for special warnings and other remarks, such as a long-term picture of conditions ahead, and for indicating which items in the forecast apply to particular areas. While this service was in operation, the normal channels of information used by Imcos were supplemented by temperature readings taken at midnight, 3 a.m., and 6 a.m., by the Southern Railway at Woking, Swanley, Three Bridges, Ore, and Havant.

New Service for G.W.R.

The G.W.R. forecasting service, beginning in November, will be concerned particularly with predicting fog, frost, and snow conditions. At the G.W.R. docks, especially at Cardiff, warnings of fog and frost will enable steps to be taken towards minimising a hold-up of traffic, and benefit will be experienced from the ability to maintain the speedy turnaround of wagons which is so important a factor in maintaining a steady circulation of vehicles in present conditions of rolling stock shortage. In addition it will enable items of hydraulic equipment at docks to be drained when night frost is forecast, thus preventing it from being put out of action.

The fog, frost, and snow warnings will



Division of Southern Railway electrified area into four zones for weather forecasting purposes in the winter of 1946-47



Preparation of weather maps at the Imcos laboratories

Photo 1

be used all over the system in making early preparations to counter the effects of adverse weather. The G.W.R. will be able to detail men in good time for fogging duties, get its snow ploughs in readiness when heavy falls are expected, and allocate gangs where required, for dealing with frosted points and signal rodding, and for salting fittings when frost is expected. A sub-office will be manned by Imcos staff at Paddington in the early stages of the scheme, but subsequently the reception and distribution of the forecasts will be undertaken entirely by the G.W.R.

Many references have been made in our pages to the measures taken by the railways to counteract the effects of weather on train working. Their effectiveness in avoiding delays depends on their being put into operation in good time, and the value of weather forecasting in this respect will be appreciated. Its extension from predicting icing conditions to the more prevalent winter nuisance of fog will not abolish the "fog service in operation notices" familiar to suburban passengers, but may do much to ensure that traffic flows smoothly.

BABCOCK & WILCOX FILM.—Mr. C. K. F. Hague, Managing Director of Babcock & Wilcox Limited, presided at the presentation of a film entitled "Combustion and the Chain-grate Stoker," at Guild House, London, W.C.2, on Friday last. The film has been made to show the chemical and physical principles underlying the combustion of coal, and their application to the chain-grate stoker, and is available, free of charge, to users of boilers, and to students. The film describes, with the aid

of animated diagrams, how heat is liberated when coal is burnt, and draws a distinction between the theoretical quantity of air required for complete combustion and that required in practice. It explains that to obtain optimum operating efficiency, a balance has to be struck between maximum heat liberation in the furnace and minimum chimney loss. One sequence, which was photographed in actual boiler plants, deals with the practical operation of water-tube boiler furnaces, and the film

ends with a commentary by a combustion engineer, in which he emphasises the importance of efficient operation to save coal.

HUNSLET LOCOMOTIVE FOR PERU.—Recently the Hunslet Engine Co. Ltd., Leeds, has shipped to South America a 2-8-0 locomotive for the Trujillo Railway of the Peruvian Corporation Railways. This is one of the largest non-articulated locomotives delivered for 3-ft. gauge track.

Railway Workshops in Poland

Conveyor-belt system for production of tenders

THE devastation which the Polish railways suffered as a result of the war—to permanent way, stations, signalling installations, and above all to rolling stock—led the Government to give the highest possible material and labour priorities to the task of restoring to the country this most important means of communication.

The question of increasing rolling stock in Poland has been linked intimately with restoring the internal economic life of the country, as well as exports, particularly coal. In exportable surpluses of coal, Poland possesses the best means of acquiring in international markets those essential commodities on which economic rehabilitation most depends. Considering the fact that coal has to be hauled across the whole breadth of the country from the Silesian mining regions in the south to the ports in the north of the country, a distance of some 250 miles, the restoration of the railways is seen in its proper significance.

The two years which have passed since the end of the war have been employed usefully in restoring the former rolling stock works at Chorzow and Poznan, as well as similar plants acquired in the Western Territories. Among the latter was the famous Linke-Hoffmann Works at Wroclaw (Breslau), said to be the largest wagon-building concern in Europe. When taken over by Poland, it was damaged very substantially as a result of fighting during the last phase of the war.

Another important production move has been the commissioning of various dock-yards up and down the 300 miles of the Polish coast to devote a part of their productive capacity to building such items of railway equipment as boilers, tank wagons, and so on. This has had the effect of extending the moderate rolling stock production potential to a level more commensurate with the needs of the present.

Targets for 1947

As a result of these measures, the national production plan drawn up for 1947 was able to set the rolling stock industry the following substantial target figures:—

Locomotives (standard-gauge)	200
Locomotives (narrow-gauge)	45
Tenders	250
Goods wagons	10,000
Tank wagons	400
Refrigerator vans	100
Passenger coaches (standard-gauge)	200
Narrow-gauge rolling stock	800

While not all details of the results of the production effort this year have been announced it is known that the output of such key products as goods wagons has been very satisfactory. According to a statement made by the Under-Secretary of State in the Ministry of Industry & Commerce, the number of wagons turned out in the first six months of this year is 5,015, compared with just under 1,800 in the corresponding period of 1946.

To speed up the rehabilitation of railways, the Polish Government has decided to use for the purchase of war surplus railway equipment a substantial part of the American \$50-million credit granted by the United States. The principal purchase under this head is of 500 locomotives, bought at a cost of \$13,200,000 (£3,300,000); most of these are at work already in Poland, while the rest are undergoing repairs or being overhauled.

Technical improvement in rolling stock manufacture is another aspect of the Polish

railway rehabilitation policy. Recent reports from Warsaw speak of the introduction at the Wroclaw State Wagon Works of a continuous production system of tender assembly. This is said to be the first attempt on the Continent to apply the conveyor-belt system to this type of manufacturing processes.

The assembly area is a 215,000 sq. ft. workshop, recently repaired after wartime damage. The section employs 190 hands, and is capable of turning out 12 tenders a month. It is hoped to increase this figure to 25 a month per shift.

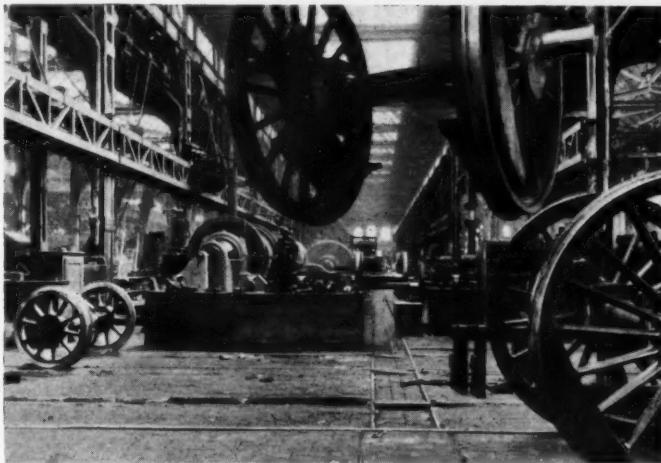
The continuous production method is reported to have resulted in substantial savings in manpower, as the average time needed to assemble one tender is now 3,000 work-hours, showing a reduction of one-third in relation to comparable work done by the Cegielski rolling stock works at Poznan. A further saving of significance for the country at the present moment re-

quires parts. A second battery of machine tools mounted along the principal conveyor belts supplies all the necessary plating.

In the subsequent sequence of operations there follows the water test; and, after the attachment of the structure to the two two-axle undercarriage, the brake test. The entry of the tender into the paint shop completes the work.

In surveying the principal problems facing the Polish railways, the financial aspects of their operation cannot be omitted. The most important of them undoubtedly is the question of putting the Polish State Railways on a self-supporting basis. This is the ideal which has been pursued by the nationalised Polish railways since their establishment in 1918. The structure of Polish tariffs and the relatively small density of traffic has made it impossible to alter the high ratio (30 per cent.) persisting in the relation between fixed charges and the total cost per ton-km.

The demand now being voiced by the railway authorities is that an upward adjustment of tariffs is overdue, and that it



The main workshop in the Central Locomotive Repair Works at Pila

sults from the employment of a larger ratio of unskilled and semi-skilled labour. In view of the severe shortage of technically competent staff, this represents a particularly important aspect of the new method.

Except for undercarriages obtained from the Chorzow Works, and some specialised parts supplied by the Cegielski concern at Poznan, all parts used in the assembly of tenders are pressed or machined on the spot. There is hope, however, that the Wroclaw Works will be in a position to begin the production of undercarriages before the end of this year.

The design of the Wroclaw tenders is based on a German design, with a number of important improvements introduced by Polish constructors. Their water carrying capacity is 6,600 gal. (30 cu. m.).

A set of five conveyor belts is used for the mounting of sub-assemblies such as ribs, water tanks, coal containers, and so on. A set of machine tools is used for the production of parts needed in this part of the workshop. The welding of water tanks and coal containers is effected on jigs.

The sub-assemblies, mounted on carriers, later travel up and down the set of conveyor belts to receive the remainder of the

should be effected, in the main, by elimination of reduced fares or free travel for State employees. In the now expanding scope of State intervention in industry, this represents a growing proportion of passengers. It is argued that the cost of cheap fares should be borne by the respective ministries, and not by the railways.

A similar adjustment is demanded in respect of freight rates governing the transport by rail of staple products such as coal, steel, grain, and potatoes, now handled by the numerous State or co-operative trading companies.

QUICK DISCHARGE OF COAL AT SWANSEA.

—A good example of the quick discharge of a coal cargo by the G.W.R. has just occurred at Swansea Docks, where 9,000 tons of American coal have been unloaded from the s.s. *Indian City* in just over four working days. The vessel arrived on the morning tide of October 2 and unloading started at 10 a.m. Working two shifts and using nine 5-ton cranes, each equipped with 3-ton grabs, the discharge of the cargo was completed by 11.30 a.m. on October 7. On the Friday no less than 3,275 tons were unloaded between 6 a.m. and 10 p.m.

On the Highest Section of the Furka-Oberalp Railway

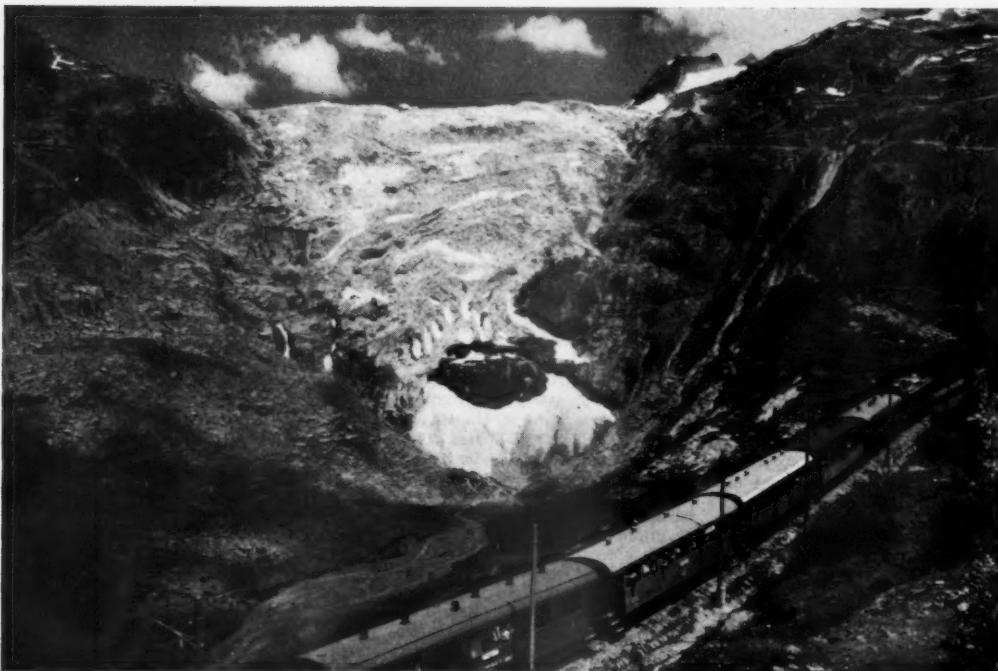
(See news article on page 448)



A snowshed in the Tavetsch Valley, where the line from Disentis rises towards its maximum altitude of 6,668 ft. near Andermatt

Photo

J. Haemisegger, Andermatt



Train passing the lower end of the Rhône Glacier near Gletsch Station. Until this year the section of line illustrated in the two views above has been closed in winter except for a limited military service

Photo

E. Oyser, Adelboden

RAILWAY NEWS SECTION

PERSONAL

RAILWAY EXECUTIVE

With the approval of the British Transport Commission, the Railway Executive has appointed Mr. George Morton, Chief Accountant of the L.M.S.R., to be Chief Financial Officer of the Railway Executive, and Mr. H. L. Smedley, Solicitor of the Southern Railway, to be the Executive's Legal Adviser & Solicitor.

RAILWAY EXECUTIVE COMMITTEE

Subsequent to the appointment of Mr. Miles Beevor as Chief Secretary & Legal Adviser to the British Transport Commission, he has resigned his membership of the Railway Executive Committee. The Minister of Transport has appointed Mr. O. H. Corble, Assistant General Manager (Ancillary Services), L.N.E.R., in his place, to be a member of the Railway Executive Committee.

Brigadier W. Marshall Clark, General Manager, South African Railways & Harbours, sailed from Southampton on October 9 on his return to South Africa.

We regret to record the death on October 9 of Mr. Gavin Cowper, London Manager of Colvilles Limited.

Mr. A. Baynton has decided to retire during the next few months from his position as General Manager of the East Kent Road Car Co. Ltd., which he has held for many years. Mr. Baynton has been associated with the company since its inception in 1916.

Mr. J. A. R. Horsley, Chief Clerk to the Road Transport Controller, Chief Goods Manager's Office, Great Western Railway, has been appointed Assistant District Goods Manager (Cartage), Paddington, in succession to Mr. G. C. Savage, who has retired.

Mr. A. W. Cross, Senior Fuel Efficiency Officer of the L.M.S.R., has retired after 49 years railway service.

MR. MILES BEEVOR'S MESSAGE TO L.N.E.R. STAFF

Mr. Miles Beevor, lately Acting Chief General Manager, L.N.E.R., and recently appointed Chief Secretary & Legal Adviser to the British Transport Commission, has contributed the following message to the *L.N.E.R. Magazine*:

It has fallen to me, after a brief occupation of the chair of the Chief General Manager, to be the first officer of the L.N.E.R. to enter the service of the British Transport Commission, as all of us, either directly or indirectly, are bound to do in a few months time. I hope I may send a message of sincere thanks for all the help and encouragement I have received. There are many centres, and many departments, on the L.N.E.R. system with which I have not had time to make personal contact, but wherever I have been I have been met with friendship and loyalty, and I have seen, with sincere admiration, the fine work which, amid all the difficulties of a crisis period, is being done by all L.N.E.R. railwaymen. Whatever changes may come, I know that all L.N.E.R. men will continue to serve the new organisation and the public to the utmost of their ability, and I wish you all the very best of good fortune in the future. Though the great traditions of the L.N.E.R. must soon be merged in the combined undertaking which I shall now be helping to build up, those traditions will not die and I shall always remember with gratitude and pride that I am an L.N.E.R. man.

Rai Bahadur P. C. Khanna, who, as recorded in our August 8 issue, has been appointed Chief Administrative Officer of the Eastern Punjab Railway, which came into being with effect from August 15, 1947, as a consequence of the partition of the North Western Railway, is 53 years old. He was born at Delhi, and was educated there and at Cawnpore, Amritsar and Lahore, finally graduating from the St. Stephen's College, Delhi, in 1914. He joined the Thomson College of Civil Engineering, Roorkie, in the next year, and passed out in 1918. In September of that

way as a clerk in the Goods Manager's Office, Glasgow, and on the formation of the L.M.S.R. in 1923 was transferred to the General Superintendent's Office (subsequently re-named Operating Manager's Office). He was appointed Divisional Controller for Passenger Train Services, Operating Manager's Office, Glasgow, in 1944.

Squadron-Leader R. H. Marks has been appointed Assistant Secretary of the North Western Regional Office at Manchester of the Federation of British Industries, in succession to Mr. W. R. Eadie, who was



Rai Bahadur P. C. Khanna
Appointed Chief Administrative Officer, Eastern Punjab Railway

year he joined the North Western Railway as an apprentice engineer, and worked on the doubling between Peshawar City and Jamrud during the last Afghan War. Rai Bahadur Khanna was engaged on a number of projects such as the conversion of the Nowshera-Durgai section from narrow to broad gauge and the Sind left bank feeder railway. He was appointed a Deputy Chief Engineer in 1943, a Divisional Superintendent in the next year, and Chief Engineer in 1946. The title of Rai Bahadur was conferred on him in 1945 in recognition of his services to the railway. On the partition of the North Western Railway into two parts (N.W.R. and Eastern Punjab Railway), Rai Bahadur Khanna was selected to organise the new railway so as to bring it into existence as a separate line from the date of the transfer of power.

We regret to record the death on October 13 of Mr. Geoffrey Lancaster Groves, M.I.C.E., Partner in Mott, Hay & Anderson. Mr. Groves was recently awarded the Baker Gold Medal of the Institution of Civil Engineers in recognition of his work in connection with the Ilford tube.

Mr. James Gordon, Divisional Controller for Passenger Train Services, Operating Manager's Office, Glasgow, L.M.S.R., has retired, after over 40 years service. Mr. Gordon commenced his railway career with the Glasgow & South Western Rail-

recently appointed Secretary of the South Western Region of the F.B.I., at Bristol.

Mr. C. Furber, M.Inst.T., Deputy Chief Goods Manager & Mineral Manager, Great Western Railway, who, consequent on the appointment of Mr. David Blee to the Railway Executive, has assumed the duties of Chief Goods Manager from October 1 until the company is absorbed in the British Transport Commission, was born in March, 1889, and entered the company's service in 1904. After a period in the London District Goods Manager's Office and at Southall Goods Station, Mr. Furber was promoted in 1916 to the General Manager's Office, where he acted as Personal Clerk to the General Manager and was in charge of the General Section. He was a member of a number of staff investigation committees, acted as Secretary to the Clerical Works Committee, and was associated with proceedings before the Railway Rates Tribunal. In 1926 he became Assistant to the London District Goods Manager, and subsequently he was appointed Chief Clerk to the Chief Goods Manager, in which capacity he acted as Secretary to the Great Western Goods Conference. In 1933 he became Mineral Traffic Manager, and in July, 1942, Mineral Traffic Manager & Development Agent. During the recent war he served on the executive sub-committee of the Lord President's Coal Committee and the



Elliott

Mr. C. Furber (l& Fry)

Who has assumed the duties of Chief Goods Manager, G.W.R., from October 1

Mines Department Transport Committee. Mr. Furber is Chairman of the Mineral Committee of the Railway Executive Committee, and the Advisory Committee of Traders & Railways dealing with questions affecting the distributive coal trade under the Demurrage Order, 1939, and a member of the Birmingham Coal Exchange, the American Chamber of Commerce in London and the Transportation Committee of the London Chamber of Commerce. Mr. Furber received his appointment as Deputy Chief Goods Manager & Mineral Manager, G.W.R., in April, 1946.

Mr. Henry Norman Anderson, who, as recorded in our September 26 issue, has retired from the position of General Manager of the Buenos Ayres Great Southern Railway and of the Buenos Ayres Western Railway, entered the service of the former company in 1900 as a junior clerk, and occupied various posts in the management until the outbreak of war in 1914, when



Mr. H. N. Anderson

General Manager, Buenos Ayres Great Southern and Western Railways, 1944-47

he joined the British Army. He served with the Royal Scots in Salonika, and later in Mesopotamia as Personal Assistant to his former chief, Major-General R. de Candolle, Director-General of Transportation, whom he subsequently accompanied to Constantinople; there he served on the military control and operating staff of the Anatolian Railway in the capacity of Assistant Manager, with the rank of Major. In 1921 he rejoined the Buenos Ayres Great Southern Railway as Personal Assistant to the General Manager. On the appointment, in 1935, of Mr. C. R. S. Harris as Director-General of the B.A.G.S.R. and B.A.W.R., Mr. Anderson was selected as his Assistant, occupying that position in conjunction with the post of General Manager, Buenos Ayres Midland Railway (to which he was appointed in 1936), until being promoted Assistant General Manager of the B.A.G.S.R. and B.A.W.R. in 1939. Subsequent to the retirement of Major O. Loewenthal on June 30, 1944, Mr. Ander-

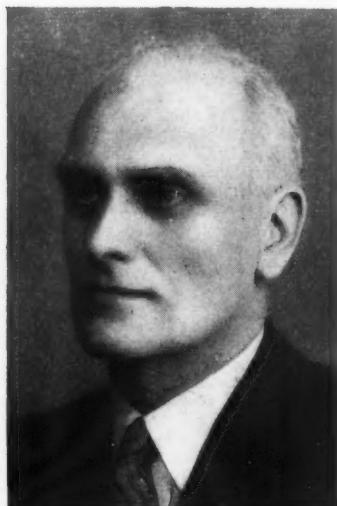


Mr. J. E. Sandham

Appointed General Manager, Buenos Ayres Great Southern and Western Railways

son assumed the General Managership in an acting capacity until his confirmation as General Manager on January 1, 1945; on July 1 of the same year he became a Director on the London boards of the two companies, and at the same time was appointed Managing Director in Argentina. Mr. Anderson has now retired from the boards and from the General Managership.

Mr. John Edmund Sandham, B.Sc. (Eng.), M.I.C.E., who, as recorded in our September 26 issue, has been appointed General Manager of the Buenos Ayres Great Southern Railway and of the Buenos Ayres Western Railway, was born in London in 1900, and received his technical education at University College and the Battersea Polytechnic Engineering College. In 1921 he joined the Buenos Ayres Great Southern Railway as an Assistant Engineer; he was appointed Sectional Engineer in 1925 and Assistant Maintenance Engineer in 1927. From 1930 to 1933 he was



Mr. E. G. Brentnall

Appointed Assistant Chief Engineer (Signals), L.N.E.R.



Mr. A. A. Harrison

Confirmed in the post of Assistant Goods Manager (Southern Area), L.N.E.R.



Mr. A. B. Chester

New Works Engineer, Southern Railway, 1946-47

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Resident Engineer of the Bahia Blanca Water Works Co. Ltd., a subsidiary of the B.A.G.S.R., to which he was recalled in the latter year to take up an appointment as Inspecting Engineer. In 1937 Mr. Sandham was appointed Maintenance Engineer, and, in 1945, Engineer-in-Chief, of the Buenos Ayres Great Southern and Western Railways.

Mr. E. G. Brentnall, B.E.M., M.Eng., A.M.I.C.E., A.M.I.Mech.E., A.M.I.E.E., M.I.R.S.E., Assistant to Engineer (Signals), Edinburgh, L.N.E.R., who, as recorded in our August 22 issue, has been appointed Assistant Chief Engineer (Signals), was educated at Heanor Grammar School and at Sheffield University, where he graduated with first class honours. In 1924 he was appointed Junior Assistant, Sheffield District Engineer's Office, L.N.E.R. In 1926 he became Assistant, Signal & Telegraph Engineer's Office, York, and in 1929 Electrical Assistant to Signal & Telegraph Engineer, North Eastern Area. He was engaged on signalling works of all types, among them the York-Northallerton ressignalling. In 1936 Mr. Brentnall was appointed Chief Technical Assistant to Signal & Telegraph Engineer, Southern Area, and in 1937 Outdoor Assistant to Signal & Telegraph Engineer, Southern Area. In 1943 he became Chief Assistant (Signals), Southern Area, and last year was appointed Assistant to Engineer (Signals), Edinburgh. During 1940-44, Mr. Brentnall was responsible for the restoration of signalling and communications after aerial attack; he was awarded the British Empire Medal in that connection. From 1932-36 he was lecturer in mechanical and electrical engineering at York Technical College; and in 1939-40 he collaborated in the preparation of the text book "Railway Signalling and Communications." From 1939 to 1946 he was Chairman of an R.C.H. sub-committee engaged in the preparation of standard specifications for railway signalling cables. Mr. Brentnall is a Member of Council of the Institution of Railway Signal Engineers.

Mr. A. A. Harrison, who, as recorded in our September 5 issue, has been confirmed in the post of Assistant Goods Manager (Southern Area), L.N.E.R., was educated at Kilburn Grammar School, and started his railway career with the L.N.W.R. He joined the North Eastern Railway in 1922, and, after a period of training in the north, took up staff work in the Chief General Manager's Office, L.N.E.R., at Kings Cross. In 1926 he was appointed Assistant to the L.N.E.R. (Southern Area) District Manager at Leeds, and he continued in a similar post when the Southern and North Eastern Area district offices at Leeds were combined. He took a special interest in cartage work, and was appointed Road Motor Superintendent for the North Eastern Area in 1933, becoming Cartage Manager in 1941. In 1943 he returned to the Southern Area as Acting Assistant Goods Manager, in which appointment he is now confirmed. Mr. Harrison was Chairman of the Yorkshire Section of the Institute of Transport from 1941 to 1943.

Mr. A. B. Chester, B.Sc. (Eng.), A.C.G.I., D.I.C., M.I.C.E., who, as recorded in our October 10 issue, is retiring from the position of New Works Engineer, Southern Railway, received his engineering training at the City & Guilds Central Technical College. In 1911 he joined the L.S.W.R., as an Assistant, first on new works and then on design in the head office at Waterloo. Three years later he was appointed Resident Engineer on alterations at Nine Elms, and afterwards an Assistant on the original electrification of the L.S.W.R. He enlisted in a Signal Company, R.E., in 1914, and was commissioned in a Field Company, R.E., in the next year; he served in France in the 512th Field Company (56th Division). In 1917 Mr. Chester was transferred to a Railway Construction Company, R.E., and at the end of hostilities served on the staff of the Chief Railway Construction Engineer at G.H.Q.; he was demobilised with the rank of Captain. On rejoining the L.S.W.R., he was employed on the staff of the Per-

manent Way Assistant at Waterloo, and later was appointed Resident Engineer on the reconstruction and re-organisation of the permanent way depot at Redbridge in 1922. After a period as Resident Engineer on various works in Hampshire, including the reconstruction of Southampton Terminus Station and alterations at Bournemouth Central, Mr. Chester returned in 1929 to Waterloo to assist the Chief Engineer in connection with the Charing Cross bridge scheme. In 1931 he became Assistant Divisional Engineer, London East, and in 1936, Central Divisional Engineer. As a Lt.-Colonel, R.E. (Supplementary Reserve), he was called up on the outbreak of the recent war, and served as Assistant Director of Transportation Stores in France from September, 1939, until the evacuation in June, 1940. He was released for home railway service in August, 1940, and was appointed General Assistant to the Chief Engineer. He was recalled to the Army in July, 1943, and served with the rank of Colonel at the War Office on the staff of the Director of Transportation in charge of Transportation Stores. He was demobilised in October, 1945. In April, 1944, Mr. Chester was appointed Assistant Engineer (General), Southern Railway. He was made New Works Engineer in 1946.

We regret to record the death on October 9, at the age of 61, of Mr. J. J. V. Taylor, a Director of Gresham & Craven Limited.

Mr. A. W. Manser, hitherto Senior Production Engineer, Acton Works, L.P.T.B., has been appointed Assistant Mechanical Engineer (Workshops) in the Department of the Chief Mechanical Engineer (Railways).

The late Sir Henry Chapman, General Manager, Rhodesia Railways, 1930-38, subsequently Director & Technical Adviser in London, and from 1940-45 Resident Director of the company in Rhodesia, also a Director of other railway companies, left £48,692.

Brigadier Marshall Clark with L.P.T.B. Officers



Brigadier W. Marshall Clark, General Manager, South African Railways & Harbours, visited L.P.T.B. headquarters before leaving recently for South Africa

Left to right: Messrs. C. G. Page, Secretary & Chief Legal Adviser; W. S. Graff-Baker, C.M.E. (Railways); G. F. Sinclair, Deputy General Manager (Road Services); Brigadier Marshall Clark; Messrs. A. B. B. Valentine, Operating Manager (Railways) (recently appointed to the London Transport Executive); P. Croom-Johnson, Chief Engineer; F. A. A. Menzler, Chief Development & Research Officer; P. G. James, Accountant

Ministry of Transport Accident Report

Between Grayrigg and Oxenholme, L.M.S.R., May 18, 1947

Lt.-Col. G. R. S. Wilson inquired into the accident which occurred at 2.7 p.m. on May 18, 1947, at Lambrigg Crossing signal box, between Grayrigg and Oxenholme, L.M.S.R., when the 10 a.m. express No. 96, Glasgow to Euston, composed of 13 bogie coaches drawn by 4-6-2 engine No. 6235, *City of Birmingham*, which should have stopped for the purpose of setting back over to the down line to proceed under single-line working (the up line from the crossing to Oxenholme No. 2 signal box being out of use on account of relaying work near the latter) failed to do so, and collided with a 4-4-0-type light engine, standing 440 yd. beyond the home signal in readiness to assist the train to set back. The three detonators protecting the obstructed line were just beyond this engine and were exploded as it was driven forward 77 yd. by the collision, which took place on the Docker Viaduct. The engine and three leading coaches of the express were derailed all wheels, but fortunately remained close to the track alignment without touching the parapet, helped probably by the guiding effect of the light engine, with only one pair of wheels derailed, as it was pushed forward interlocked with the express engine.

The driver of the light engine, realising that the express could not stop in time, had set it in motion, materially reducing the force of impact. Three passengers were detained in hospital and 30 others subsequently complained of minor injuries and shock. A dining-car cook was detained in hospital and another sustained minor injuries, as did the driver and fireman of the light engine. There was light drizzling rain, but visibility was good.

The line falls in the up direction for two miles at 1 in 106 towards Lambrigg Crossing, with continuous but easy curvature. An intermediate box, Mosedale Hall, $\frac{1}{4}$ mile in rear, was switched out. The up distant signal for the crossing has a tall post with lower quadrant arm and comes into view with a good sky background at 425 yd. Colonel Wilson seldom had seen a signal more conspicuous in daylight. The home signal, 1,184 yd. in advance, recently renewed and re-sited, comes into view at 520 yd., but has a hillside background and is not so conspicuous as the distant.

In accordance with rules, the home signal was maintained continuously at danger, and trains were drawn past by hand signal. The light engine was provided to assist heavy trains to back against the gradient, and the Grayrigg stationmaster, acting as pilotman, had placed it far enough in advance to allow trains to be accepted under ordinary "line clear," B.T. Regulation 4. The fortnightly notice, dated May 13, 1947, gave particulars of the single-line working, which worked smoothly until the collision.

THE COURSE OF EVENTS

The last train to set back to the down line was the No. 98 express, 9.35 a.m. from Glasgow, which did not need assistance in doing so. The signalman, who had been 11 years at the crossing box, and said single-line working had been in force many times over the down line (including the provision of an assisting light engine) without incident, accepted express No. 96 directly it was offered. He, with the stationmaster and a flagman, saw it come into view at about 600 yd. and all three realised that it was not going to stop. The flagman waved a red flag from the

4 ft. way until he had to move clear. None of them could give an estimate of the speed, but all agreed that the train was slowing down, with steam off and brakes hard on, as it passed them. The signalman at Grayrigg thought it passed him rather more slowly than other expresses that morning, none of which was travelling particularly fast.

The driver of the light engine saw the express as it was passing the box about 400 yd. away. The fireman released the tender hand brake and the driver succeeded in getting into forward gear and starting the engine just before the collision.

The driver of the express, an experienced man in a mixed passenger and goods train, was relieving a regular driver and had worked over the route regularly for many years, as fireman and driver. His evidence was brief and perfectly straightforward, and he accepted full responsibility for the accident, for which he expressed regret.

He received his fortnightly notice on May 16, two days before, studied it that afternoon and on the morning before starting, marking the reference to the single-line working, the only part of the notice that affected him. He noticed the signals at Mosedale Hall box, where he shut off steam, but could not explain how he came to miss the Lambrigg distant, except to say that he "forgot two things at once, the signals and the notice." He knew well where to look for the Lambrigg signals and said they were easy to see.

He recollects that after Mosedale Hall he turned to get his handkerchief out of his food box. He was a little time searching for it and on turning forward again found himself 50 yd. from the home signal. He made an emergency brake application and reversed. He thought speed was between 50 and 60 m.p.h., and this is supported by consideration of stopping distances, as recorded in pre-war tests, in relation to the probable speed at the moment of collision, the nature and extent of the damage suggesting 25 to 30 m.p.h. The driver was in good health, had had 24 hours rest before taking duty, and had nothing on his mind which might have distracted his attention.

The fireman also worked regularly over the route. The Lambrigg signals being so much easier to see from the driver's side, he took advantage of the falling gradient to get coal forward with the steam pusher. He saw the home signal at a range of about 30 yd. He was unable to confirm the driver's statement that he turned round after passing Mosedale Hall.

The guard was travelling in the last vehicle but two, a brake third, with brake compartment in rear. He had had long experience of the route and was aware from the notice of the single-line working being in force. He said that after they passed Tebay a number of passengers came to him complaining that they had been unable to find seats, and he spent the next few minutes, during which the train passed Grayrigg, in getting some seated in his own vehicle.

He then realised that they would be approaching Lambrigg, where single-line working was in force, and he tried to get back to his compartment, telling the other standing passengers to wait till he returned, and, delayed by the crowd in the corridor, had just reached it when he saw the vacuum was already falling. He repeated that he remembered the single-line working and thought he would have time to

deal with the passengers before getting to Lambrigg. Had he not been so engaged he would have made it his business to look for the signals and see that the driver was going to stop, applying the brake if necessary.

INSPECTING OFFICER'S CONCLUSION

Except for the presence of the light engine the ordinary arrangements for single-line working had been made and were being carried out in accordance with rules. The engine was necessary, to deal with heavy trains, and with 440 yd. between it and the home signal the signalman was justified in accepting the express in the ordinary way.

The collision was solely due to the driver's inattention. He stated quite simply that he forgot the Lambrigg signals. It is to his credit that he attempted no excuses, but it is the primary duty of a driver, in the exercise of his profession, to avoid forgetfulness of this kind, and Colonel Wilson can only conclude, after reviewing all the circumstances, that this driver may be unfitted temperamentally for the responsibilities of main-line work. He is 51, with 34 years' service, 10 years as a driver. His record shows some evidence of past unreliability, though it has improved considerably during the last 7 years. He required no assistance from his mate in observing signals at this point, and no blame can be attributed to the fireman.

The guard's evidence, however, was unsatisfactory, and Colonel Wilson feels that he did not do all that might have been expected of him. There is no question that he should have been at his post during the backing movement over Lambrigg cross-over, and as his train was approaching a special stop, his excuse that he was prevented, by pre-occupation with passengers in the corridor, from watching its running a minute or two before, cannot be accepted.

REMARKS

The situation would not have been affected had the distant signal been a colour-light. With ordinary attention the driver should not have failed to observe and obey it. Automatic train control, providing an audible signal and brake application, would have prevented the collision.

It was suggested to Colonel Wilson that a detonator at the distant signal would have brought the driver to his senses, one being provided, by rule, at the down distant at the other end of the single-line section. This he thinks to be very likely, but points out that the conditions were no different in principle from that obtaining when a train approaches a home signal with 440 yd. clear ahead of it in the ordinary course of traffic. At the other end of the section a train overrunning the home signal would be entering a section used as a single-line, with risk of collision with an opposing train, and hence the rules provide for a detonator at the distant signal at that end (also acceptance under the warning arrangement when the pilotman is not there) unless there is an outer home signal.

Colonel Wilson considers there is no justification for alteration in the rules to provide a flagman with detonators at the distant signal at both ends of a section during single-line working. Obedience to signals is fundamental, and provided that discipline is conscientiously maintained, as it generally is, the reminder by the fortnightly notice of the need for an unusual stop should be sufficient, even in the absence of automatic train control.

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Rehabilitating London Transport Tube Stock after Open-Air Storage

Beginning in 1938, new tube rolling stock was delivered to London Transport, in order to make vehicles available for the Central Line extensions. Some 600 cars were required for the Central Line service, including the extensions then planned. This programme of extensions was suspended for the duration of the war, but not before a surplus of 340 cars over those needed for immediate use had been acquired.

The new cars were put into service because of their increased passenger capacity, leaving the older cars to be stored. Owing to the inadequacy of available covered storage space, the vast majority of these cars had to be stored for the duration of the war in the open, notably on the sidings at Hainault, with a few at Edgware, Morden, Golders Green, and Neasden; the remainder were stored under cover, mostly at Ruislip. Some cars were converted for use on special services, such as catering supplies for tube shelterers.

Notwithstanding the value of this work, much of the panelling had suffered inevitably from exposure; continued expansion and shrinkage of the window moulds had allowed water to drain inside the car; and gutter pipes had become fouled by dust and grime. Car floors became damp, and flooring rotted or was forced up off the floor plating by swelling. The floorplates themselves were badly rusted around the damp areas. The runners of all side sliding doors had become corroded, rendering the doors immovable. Door air engines were badly affected, the operating arms being thick with rust and jammed in the guides on the door, and the whole mechanism covered in a thick coating of oily dirt and flakes of rust. As a consequence, renewals of normally bright steel parts have been very extensive. In addition, the majority of the rubber edges of the doors had perished.

Another portion of the equipment which had been affected adversely by the long

siderable amount of work arose also from the necessity of incorporating in this stock the modifications and service improvements which had taken place during the years of storage. Materials have been difficult to obtain, and considerable ingenuity has been exercised to make do with what has been available.

As soon as the first two trains had been completed, they were put into passenger service with the object of confirming that the rehabilitation work was of a satisfactory standard in practice. It was desirable in as many respects as possible to bring the cars up to new condition, and it had to be decided how much material or what pieces of apparatus should be renewed. Some of the items presenting problems which were difficult of solution were:

Cabling.—Decisions had to be taken on how much should be replaced. Labour and materials did not permit of the renewal of all cables in all cars.

Air hoses.—These were out of date, but being as good as could be obtained pending the free supply of natural rubber.

Air piping.—Much of the interior had become rusted, and the particles of rust



Tube vehicles reconditioned for service at Acton Works

The work of reconditioning all these cars has been progressing steadily since April, 1946, and to date more than 200 rehabilitated cars have been turned out of Acton Works, the necessary space having been made available after cessation of war work there, and reconversion of one of the workshops to its original condition.

REHABILITATION DIFFICULTIES

The rehabilitation proved more difficult than had been foreseen, because of the severe effects produced by seven years' weathering in the open. There had also been considerable wilful damage, more than 90 windows being broken on one side of one six-car train which arrived for repairs. Rust blisters had formed on the panels where the paint had been knocked off, and a number of cars suffered war damage from blast, holing of doors, roofs, and so on, although, curiously enough, none of these cars suffered major damage in this way.

Valuable work was carried out under difficult conditions during the war by a small staff of men who went round the stock week by week, patching up broken windows, and stopping-up and painting over deterioration of panels and roofs. This work undoubtedly saved roofs and panels which otherwise would have rusted

period of storage was the electrical apparatus in the switch compartment. Dust, rust, and particles of perished paint had piled up more than $\frac{1}{2}$ in. high on all flat surfaces. All copper was green and pitted, cable ends corroded, and the insulation perished and brittle. Screws were rusted, and despite their original zinc plating protection, pivots, rockers, and sliding contacts were all corroded and immovable, while fuse cartridges were warped into curious shapes. The laid-up stock revealed, in fact, the unexpectedly bad state into which first class apparatus could get by standing idle in the open.

A large proportion of the cars had to be stripped to the bare steel panels in an endeavour to eliminate deep rust formations which had taken place, and the painting costs therefore were very heavy. Approximately 8 gal. of various kinds of paints were used on every car. Curiously enough, the condition of the trimming and upholstery was not as bad as might have been expected; apart from dirt and occasional fading, most of it "revived" quite well after cleaning and treatment in the trimming shop.

All bogies and traction motors needed inspection and attention, the motors being removed, dismantled, cleaned, and reassembled ready for service again. A con-

were prone to lodge in the valves of the various pneumatic components; repeated blowing through of the piping offered the best likelihood of successful clearance.

The rehabilitation work was undertaken by staff drafted in from other sections of the works, supplemented by new staff recruited as the work developed. The aim was to complete about 300 cars by the end of 1947, this figure being the number of cars required to provide the increased services for the extensions which it had been planned to open by that date. The present rate of output is increasing to five cars a week, with a staff composed of men of a variety of crafts and grades. The floor space available consists of three full-length roads of 400 ft. each, sufficient to hold six cars on each road, allowing working space between the ends of the cars. Space is provided also for bench work, material racks, and so on.

It is a remarkable fact that the cost of making good the depredations of wind and weather on these 340 cars which had to be stored throughout the war, has been hardly less than the cost of repairing all the damage caused to the London Passenger Transport Board's railway vehicles (apart from the cost of vehicles completely destroyed) by the various forms of German air attack on London during the same period.

G.W.R. Automatic Train Control

On Sunday, October 12, the Great Western Railway arranged a demonstration run to show how that company's automatic train control would function on a track equipped with four-aspect light signalling system. An account of the demonstration, which was entirely successful, appears on page 429. Amongst those present were:—

Ministry of Transport

Lt.-Colonel Sir Alan Mount; Brigadier C. A. Langley; Colonel G. R. S. Wilson.

London Midland & Scottish Railway

Messrs. G. L. Darbyshire (Acting President); W. Wood (Signal & Telegraph Engineer); L. B. Shoppee (Signalling Assistant to Chief Operating Manager).

London & North Eastern Railway

Messrs. E. G. Brentnall (Assistant Chief Engineer (Signals)); E. W. Rostern (Superintendent, Southern Area); G. A. Musgrave (Locomotive Running Superintendent, Western Section); H. F. Fallant (Assistant Superintendent, North Eastern Area); H. G. Sayers (Superintendent, Scottish Area); R. Hart Davies (Outdoor Mechanical Engineer, Doncaster).

Southern Railway

Messrs. R. M. T. Richards (Traffic Manager); V. A. M. Robertson (Chief Civil Engineer); S. W. Smart (Superintendent of Operation); L. J. Boucher (Signal Engineer); T. E. Chimes (Superintendent of Motive Power).

Great Western Railway

Messrs. K. W. C. Grand (Assistant General Manager); Gilbert Matthews (Superintendent of the Line); A. S. Quartermaine (Chief Engineer); F. W. Hawksworth (Chief Mechanical Engineer); A. W. Woodbridge (Signal & Telegraph Engineer); G. E. Orton (Chief Officer for Public Relations); C. Barman (Assistant to Chief Officer for Public Relations); S. G. Hearn (Assistant Superintendent of the Line); H. G. W. Gaut (New Works Assistant to Superintendent of the Line); H. G. Bowles (Chief Clerk, General Manager's Office); S. Gray (Head, New Works Section, General Manager's Office); M. G. R. Smith (Assistant Engineer (Maintenance)); F. C. Hall (Principal Assistant to Chief Mechanical Engineer); A. W. J. Dymond (Assistant to Chief Mechanical Engineer); K. J. Cook

(Works Assistant to Chief Mechanical Engineer); W. N. Pellow (Locomotive Running Superintendent & Outdoor Assistant to Chief Mechanical Engineer); P. R. Hall (Assistant to Locomotive Running Superintendent & Outdoor Assistant to Chief Mechanical Engineer); E. T. Davies (Divisional Engineer, London); S. Stevens (Assistant Divisional Engineer, London); P. Cambridge (Assistant Divisional Superintendent, London); E. J. Matheson (Assistant, Divisional Engineer's Office, London); H. G. Kerry (Divisional Locomotive Superintendent, London); C. S. Lock (Press Officer).

Sedrun during the past two winters. This year, however, profiting from experience gained during the war, the Furka-Oberalp Railway has decided to maintain the services over the Andermatt-Realp and Andermatt-Sedrun sections, mainly with a view to providing additional facilities for tourists.

Electrification of the Furka-Oberalp Railway was completed on July 1, 1942 (see our December 11, 1942, issue). From Brigue, at an altitude of 2,223 ft., the line rises to 4,480 ft. at Oberalp. The highest point, 6,668 ft., is reached $\frac{1}{4}$ miles east of Andermatt.

Extended Winter Service on Furka-Oberalp Railway

Weather conditions in winter in the mountain regions traversed by the Furka-Oberalp Railway (Brigue to Disentis) render it inadvisable to maintain the services over the sections most exposed to avalanches and snowdrifts. Normally, winter services are limited to the 26-mile section between Brigue and Oberwald in the west and to the 5.6-mile section between Disentis and Sedrun in the east. In the Oberwald-Sedrun section only the well-known winter sports centre of Andermatt, at an altitude of 4,710 ft., normally has railway connection with the outside world during the winter timetable, as the 2.5-mile metre-gauge Schoellenen Railway, connecting Andermatt with Göschenen, on the Gotthard line, maintains its services throughout the winter.

During the war years, and exclusively for defence reasons, the two additional sections of the line were kept open to traffic, both in connection with the Schoellenen Railway. These were Andermatt-Realp (5 miles in the Brigue direction); and Andermatt-Sedrun (12.4 miles eastwards). In 1945, however, the agreement with the Swiss military authorities to keep those two sections open during the winter was not renewed, and no winter services were run between Oberwald and

Southern Railway Lecture & Debating Society

On October 9 an audience of over 200 members of the Southern Railway Lecture & Debating Society assembled at the Chapter House, Southwark, to hear Mr. J. L. Harrington (General Assistant to the General Manager, Southern Railway) read the first paper of the 1947-48 session. Mr. Harrington's subject was "Cross-Channel Ships and Services," and he traced the history and development of the cross-Channel steamship services from the days of the *Queen* of 1902 to the *Invicta* and *Falaise* of the present day. Mr. Harrington did not confine himself to Southern Railway services, but dealt also in some detail with the services of the other companies to Ireland, Hook of Holland, and so on. On the technical side, with the aid of excellent slides, he described the development of the cross-Channel ships' boilers, and such recent developments as the stabiliser. The lecture was followed by the showing of a film recently made by the Southern Railway Film Unit portraying, in colour, the day's work of the *Invicta*.

After various questions had been answered by Mr. Harrington, a vote of thanks was proposed by Mr. R. M. T. Richards (Traffic Manager), in which he

Automatic Train Control Demonstration, G.W.R.



G.W.R. "Castle" class locomotive No. 5056 hauling the A.T.C. demonstration train at 86 m.p.h.

Photo

[M. W. Earley]

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paid tribute to the thoroughness with which Mr. Harrington had treated his subject.

This was seconded and endorsed by Mr. C. Grasemann (Public Relations & Advertising Officer). In the unavoidable absence of Sir Eustace Missenden, the chair was taken by Mr. J. Elliot (General Manager). The next lecture will be given on November 13, at the Chapter House, by Mr. C. M. Cock (Chief Electrical Engineer) on "India."

On October 11 a party of some 35 members visited Ashford Works in connection with the works centenary celebrations.

Hurst, Nelson & Co. Ltd.

The annual general meeting of Hurst, Nelson & Co. Ltd. was held in Glasgow on October 9. Lt.-Colonel Arthur N. Forman, Chairman of the company, presided.

The Chairman, in moving the adoption of the report and accounts, emphasised in particular the following points: (1) The increase in trading profit from £109,900 to £154,346; (2) the increase from £16,802 to £46,623 in balance of profits carried forward, after providing for preference dividends, proposed final dividend of 15 per cent. on ordinary shares, making 20 per cent. for the year, and transfer of £10,000 to general reserve; and (3) the increase of approximately £130,000 in reserves and undistributed profits now amounting to £324,612 and disclosing the strength of the company's financial status which was probably greater today than ever before in the history of the company.

Whereas, at the beginning of the year, liabilities included a bank loan of £100,000, this had been repaid during the year and cash in hand and at bankers on deposit and current accounts at the close of the year amounted to £416,813. This influx of cash had arisen, almost wholly, from part realisation of their investment in Wagon Repairs Limited. Approximately £200,000 had since the date of the balance sheet been invested in short-dated Govern-

ment securities pending decision as to its eventual disposition.

The past year had been eventful also in another direction. Since they met in 1946, the Transport Act, 1947, had been passed. Accordingly, the wagons owned by their subsidiary company would become the property of the British Transport Commission on January 1, 1948. When the necessary arrangements had been completed, the compensation payable by the Government for these wagons, in British Transport stock, would be received by their subsidiary company, which, as its business thus would be brought to an end, would proceed to members' voluntary liquidation, and the total net proceeds of liquidation would, in course, pass to Hurst, Nelson & Co. Ltd.

During the year their participation in wagon manufacture for home and export had been a creditable contribution to the national production drive. The output from their works had been maintained at a higher level than that of any prior post-war year or even of any war year. This improvement in output had countered both the increase in production costs, unavoidable in present conditions, and the effect of price restriction imposed in Government contracts.

BASIS OF PROSPERITY

If this country were to survive, the Chairman concluded, we must again be allowed to adopt a national industrial policy, free from unnecessary restrictive controls and founded on the true principles of private enterprise, such as had proved in the past to be the only way to national and individual prosperity and happiness.

He was satisfied that, when such a policy was introduced, their company would be well placed to play its part in the effort to rebuild the national economy and retrieve, for the citizens of this country, the freedom and standard of living which they enjoyed before the war and had, since its end, been too long denied.

The report and accounts were adopted.

Ashford Works Centenary, Southern Railway



Lord de L'Isle and Dudley (left) and Mr. Henry Brooke, Deputy-Chairman, Southern Railway (right) inspecting a painting of a S.E. & C.R. locomotive at the Ashford Works centenary exhibition last week. The painting was hung originally in the board room at London Bridge

Notes and News

Assistant Stores Superintendent Required.—An assistant stores superintendent is required by a British railway company operating in Chile. Candidates must have had considerable experience in railway storekeeping. See Official Notices, page 451.

Cheaper L.N.E.R. Platform Tickets in Scotland.—The L.N.E.R. announces that as from October 6 a reduced charge of 1d. for platform tickets has been introduced at Edinburgh Waverley, Haymarket, Glasgow Queen Street, and Aberdeen Joint Station.

Rail Transport Officer Required.—A rail transport officer, between 35 and 50 years of age, is required on the staff of the Director of Movements, Admiralty. Candidates must have railway experience including service on headquarters staff, and possess a thorough general knowledge of railway operations. See Official Notices, page 451.

Assistant Traffic Superintendent Required.—An assistant traffic superintendent, not over 35 years of age, is required by the Gold Coast Government Railway department for two tours of 18 to 24 months with prospect of permanency. Candidates must have thorough practical knowledge of traffic operating and railway commercial work, both passenger and goods, including accounts. See Official Notices on page 451.

Administrative Assistant Required.—An administrative assistant, 25 to 35 years of age, is required by the Government of the Gold Coast for the railway department for two tours of 18 to 24 months with possible permanency. Candidates must have a good general knowledge of railway and harbour working, including office procedure, accounting and statistics, with preferably some experience in the head office of a home railway. See Official Notices on page 451.

Prototype Steel Railway Coach for Britain.—Reuters reports that a British adaptation of the latest American streamline railway coach was loaded aboard the steamship *Marwarri* (8,067 tons) for shipment to England on October 10. The new coach, built in Philadelphia for the British firm of Pressed Steels Limited by the Budd Company, originator of the all-stainless steel streamline coach, will serve as a pattern for a fleet of similar coaches which are to be built by the British firm. The coach combines saloon-type seating with compartments, and is typical of new coaches built for leading American railways by the Budd Company.

Mexican Railway Sale.—In a statement issued with the report for the year ended June 30, 1946, of the Mexican Railway Co. Ltd., the Chairman, Mr. Vincent W. Yorke, recalls that the railway was transferred to the Mexican Government on June 1, 1946. The results of working, therefore, have little significance now that the operation of the system has passed into other hands and no further revenue will accrue to the company. Higher tariffs, which came into force on January 1, gave an increased revenue for the year, which amounted to ps. 36,099,984. Total expenditure of ps. 34,174,306 left a balance of ps. 1,925,678 to go to net revenue account, which is equivalent to £106,982. There was a deficiency in net revenue account of £2,934,302 at June 30, 1946. The Chairman announced at the meeting on October 9 that the Mexican Government had received the final instal-

ment (ps. 21,500,000) of the purchase price of the railway, and that the sum of £1,020,000 had been paid into the bank in London. An announcement from Mexico City of the completion of the purchase was reported in our October 10 issue.

Institution of Railway Signal Engineers.—The annual dinner and dance of the Institution of Railway Signal Engineers will be held at the Hamilton Hall, Abercorn Rooms, Great Eastern Hotel, Liverpool Street, E.C.2, on Wednesday, October 22. Sir William Wood, Member, British Transport Commission, and Lady Wood will be the chief guests.

Visitors to Southern Railway Ashford Works Centenary.—During the period of the Ashford Works centenary exhibition, which closed on October 12, there was an attendance of 7,500 visitors. The number of visitors on the closing day (Sunday) was 2,300. We recorded the opening of the exhibition on October 6 by Lord de L'Isle and Dudley, V.C., in our October 10 issue. (See illustration on page 449.)

Higher Wages and Fewer Hours.—In August, according to the *Ministry of Labour Gazette*, the working hours of 25,000 persons were reduced by an average of $3\frac{1}{4}$ hr. a week. Changes in rates of wages operative in the same month resulted in an aggregate estimated increase of £340,000 in the weekly full-time wage of some 840,000 persons. The approximate number of employees involved in 123 stoppages of work was nearly 47,000, and the aggregate number of working days lost during the month at the establishments concerned was about 122,000.

Extension of London Transport Telephone System.—London Transport is soon to open at Loughton, Essex, the thirtieth exchange on its private telephone network. At present the system covers 2,000 square miles of the London area, has 4,500 subscribers, and 29 exchanges. It is the largest private telephone system in London. All the exchanges are automatic, and places as far out as Chesham, in the G.P.O. toll-call area, can be dialled from any part of London on the London Transport system. The full-time work of 74 men is needed to maintain this extensive telephone network.

Emergency Increase in U.S.A. Goods Rates.—It was reported from New York on October 7 that the Interstate Commerce Commission had authorised the railways to make an emergency increase of 10 per cent. in their goods rates. A request for an immediate 10 per cent. increase was made in the course of evidence presented to the Interstate Commerce Commission by the railways, seeking an average increase in rates of 17 per cent. (see page 366 of our October 3 issue). It is estimated that the increase will result in an additional revenue of \$125 million between now and the new year.

New Belgian Office for Thos W. Ward Limited.—Thos. W. Ward Limited, Sheffield, is widening its export activities by establishing branches or subsidiary undertakings in many overseas centres. Among those recently announced is the formation of a new Belgian organisation with headquarters in Antwerp, serving the Dutch, Belgian, and Luxembourg areas. The company has been registered under the designation Thos. W. Ward (Belgium) S.A., and offices have been opened at 8, Longue Rue des Claires, Antwerp. The local Director in charge of operations is Mr. Jan Bronkhorst. Apart from the many interests of the parent organisation, the company also represents certain subsidiaries and associated companies, and at the

same time a number of other agencies exterior to the parent organisation is being operated.

L.M.S.R. 5 Per Cent. Redeemable Debenture Stock.—Notice is given that a balance of the London Midland & Scottish Railway Company's 5 per cent. redeemable debenture stock will be struck at the close of business on October 25.

Scottish Oil Engines Limited.—A company entitled Scottish Oil Engines Limited has been registered in Scotland with a capital of £250,000 in £1 shares. The company, the sales of which will be handled by Associated British Oil Engines Limited, will manufacture internal-combustion engines in a factory to be known as Gowkthrapple Works which is being built at Wishaw. The directors are Mr. A. P. Good (Chairman), Mr. A. C. Geddes, Mr. R. W. Richards, Colonel H. T. Thornley, and Mr. A. McBain.

Institution of Works Managers.—Lord Woolton, addressing a meeting of the Institution of Works Managers in London on October 9, suggested that workers should be paid on results, and managements given additional payment based on profits. We were moving into conditions in which industrial units grew very big indeed, and he believed that it would be necessary to look at the rewards of management. He did not believe that human nature had risen yet to the very high plane where it could stand absolute security and the absence of profit motive. Talk about the vice of the profit motive was impractical nonsense. We were constantly being told that what we had to do was export. That was not true—we had to sell the goods that we exported, and that might be a very different thing.

Increased Iron and Steel Production.—Steel production in September was at the annual rate of 13,841,000 tons, compared with 12,178,000 tons a year in August last, and with 12,402,000 tons in September, 1946. Pig iron production was at the rate of 7,805,000 tons a year, compared with 7,660,000 tons in August last and in September, 1946. Some figures are:—

STEEL INGOTS AND CASTINGS (000's of tons)

	1947	1946	Weekly average	Annual rate
First quarter	216	11,231	243	12,617
Second quarter	244	12,694	252	13,111
Third quarter	235	12,241	230	11,953
August	234	12,178	226	11,747
September	266	13,841	238	12,402

PIG IRON (000's of tons)

First quarter	134	6,989	145	7,566
Second quarter	142	7,363	150	7,827
Third quarter	147	7,628	147	7,622
August	147	7,660	145	7,558
September	150	7,805	147	7,660

Runway across G.W.R. for "Brabazon" Aircraft.—A concrete runway is to be laid between the G.W.R. lines at North Filton, on the line from Bristol to Avonmouth Dock, to enable the Bristol "Brabazon" aircraft to cross from the erecting shed to the take-off field. The runway will be 120 ft. long, and crossing gates, electrically operated from the signal box, will be installed on each side of the line. The overhead telegraph lines for a considerable distance will be placed underground to ensure free passage for the 230-ft. wing span of the aircraft. It is expected that the runway will be used up to six times daily. Special telephone circuits are to be provided between the headquarters of the Bristol Aeroplane Co. Ltd. at Filton and the G.W.R. so as to co-ordinate crossing with train services. Work on the laying of the concrete runway began on October 13, and single-line working was brought into operation.

ber 13, and single-line working was brought into operation.

Exchange of Zafra & Huelva Bonds.

It is announced by the Zafra & Huelva Railway Co. Ltd. that an early announcement is expected from the Spanish Government stating the procedure for the changing of the company's shares and mortgage bonds into Government bonds. The exchange is in accordance with the decree of May 31, 1946, offering to holders of the company's shares and bonds Spanish

British and Irish Railway Stocks and Shares

Stocks	Highest 1946	Lowest 1946	Prices	
			Oct. 14, 1947	Rise Fall
G.W.R.				
Cons. Ord. ...	61 $\frac{1}{2}$	54 $\frac{1}{2}$	55	—
5% Con. Pref. ...	126 $\frac{1}{2}$	107	114 $\frac{1}{2}$	—
5% Red. Pref. (1950) ...	106 $\frac{1}{2}$	102 $\frac{1}{2}$	98 $\frac{1}{2}$	—
5% Rt. Charge ...	140 $\frac{1}{2}$	122 $\frac{1}{2}$	127 $\frac{1}{2}$	—
5% Cons. Guar. ...	37 $\frac{1}{2}$	18 $\frac{1}{2}$	26 $\frac{1}{2}$	—
4% Deb. ...	129 $\frac{1}{2}$	106	119	—
4% Deb. ...	129 $\frac{1}{2}$	107	119	—
4% Deb. ...	130 $\frac{1}{2}$	114	120 $\frac{1}{2}$	—
5% Deb. ...	142 $\frac{1}{2}$	125	130 $\frac{1}{2}$	—
24% Deb. ...	95 $\frac{1}{2}$	81 $\frac{1}{2}$	88 $\frac{1}{2}$	—
L.M.S.R.				
Ord. ...	30 $\frac{1}{2}$	26 $\frac{1}{2}$	27 $\frac{1}{2}$	—
4% Pref. (1923) ...	64	52 $\frac{1}{2}$	57 $\frac{1}{2}$	—
4% Pref. ...	86	75 $\frac{1}{2}$	78	—
5% Red. Pref. (1955) ...	105 $\frac{1}{2}$	97	96 $\frac{1}{2}$	—
4% Guar. ...	108 $\frac{1}{2}$	100	99	—
4% Deb. ...	120	103	109 $\frac{1}{2}$	—
5% Red. Deb. (1952) ...	108 $\frac{1}{2}$	105 $\frac{1}{2}$	101 $\frac{1}{2}$	—
L.N.E.R.				
5% Pref. Ord. ...	7	5	6 $\frac{1}{2}$	—
Def. Ord. ...	3 $\frac{1}{2}$	2 $\frac{1}{2}$	3 $\frac{1}{2}$	—
First Pref. ...	59 $\frac{1}{2}$	50 $\frac{1}{2}$	53 $\frac{1}{2}$	—
5% Second Pref. ...	29 $\frac{1}{2}$	25 $\frac{1}{2}$	26 $\frac{1}{2}$	—
5% Red. Pref. (1955) ...	104	97	93 $\frac{1}{2}$	—
4% First Guar. ...	107	98	97 $\frac{1}{2}$	—
4% Second Guar. ...	101	90	91 $\frac{1}{2}$	—
3% Deb. ...	104	87 $\frac{1}{2}$	95	—
4% Deb. ...	119 $\frac{1}{2}$	102 $\frac{1}{2}$	109	—
4% Sinking Fund Red. Deb. ...	107 $\frac{1}{2}$	101 $\frac{1}{2}$	98 $\frac{1}{2}$	—
SOUTHERN				
Pre. Ord. ...	79 $\frac{1}{2}$	70	71	—
Def. Ord. ...	24	19 $\frac{1}{2}$	22 $\frac{1}{2}$	—
5% Pref. ...	125 $\frac{1}{2}$	107	113 $\frac{1}{2}$	—
5% Red. Pref. (1964) ...	115 $\frac{1}{2}$	106 $\frac{1}{2}$	105 $\frac{1}{2}$	—
5% Guar. Pref. ...	137 $\frac{1}{2}$	119	126 $\frac{1}{2}$	—
5% Red. Guar. Pref. (1957) ...	115 $\frac{1}{2}$	107 $\frac{1}{2}$	104 $\frac{1}{2}$	—
4% Deb. ...	129 $\frac{1}{2}$	105 $\frac{1}{2}$	119	—
5% Deb. ...	139 $\frac{1}{2}$	125 $\frac{1}{2}$	128 $\frac{1}{2}$	—
4% Red. Deb. (1962-67) ...	67	50	57	—
4% Red. Deb. (1970-80) ...	113 $\frac{1}{2}$	104 $\frac{1}{2}$	104 $\frac{1}{2}$	—
4% Red. Deb. (1970-80) ...	115 $\frac{1}{2}$	104 $\frac{1}{2}$	105 $\frac{1}{2}$	—
FORTH BRIDGE				
4% Deb. ...	109	103	98 $\frac{1}{2}$	—
4% Guar. ...	105	102	94 $\frac{1}{2}$	—
L.P.T.B.				
44% "A" ...	133 $\frac{1}{2}$	120 $\frac{1}{2}$	121 $\frac{1}{2}$	—
5% "A" ...	142 $\frac{1}{2}$	130 $\frac{1}{2}$	130 $\frac{1}{2}$	—
3% Guar. (1967-72) ...	108	98 $\frac{1}{2}$	95 $\frac{1}{2}$	—
5% "B" ...	128 $\frac{1}{2}$	117 $\frac{1}{2}$	117 $\frac{1}{2}$	—
"C" ...	64 $\frac{1}{2}$	56 $\frac{1}{2}$	61 $\frac{1}{2}$	+ 1
MERSEY				
Ord. ...	34	30	32 $\frac{1}{2}$	—
3% Perp. Pref. ...	76	69	68 $\frac{1}{2}$	—
4% Perp. Deb. ...	117 $\frac{1}{2}$	103	106	—
3% Perp. Deb. ...	98	81	88 $\frac{1}{2}$	—
IRELAND*				
BELFAST & C.D.	8 $\frac{1}{2}$	6	7 $\frac{1}{2}$	—
G. NORTHERN				
Ord. ...	41 $\frac{1}{2}$	30 $\frac{1}{2}$	25 $\frac{1}{2}$	—
4% Deb. ...	63 $\frac{1}{2}$	52	41	+ 1
Guar. ...	97 $\frac{1}{2}$	78 $\frac{1}{2}$	72	—
Deb. ...	107	97 $\frac{1}{2}$	95	—
IRISH TRANSPORT				
Common ...	19 $\frac{1}{2}$	16 $\frac{1}{2}$	13 $\frac{1}{2}$	- 7 $\frac{1}{2}$
3% Deb. ...	107	100	100 $\frac{1}{2}$	- 4

* Latest available quotation

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Note of the vacancies on this page relates to a man between the ages of 18 and 50, inclusive, or a woman between the ages of 18 and 40, inclusive, unless he, or she, is excepted from the provisions of the Control of Engagement Order, 1947, or the vacancy is for employment excepted from the provisions of that Order.

Crown Agents for the Colonies

APPLICATIONS from qualified candidates are invited for the following post:

ADMINISTRATIVE ASSISTANT required by the Government of the Gold Coast for the Railway Department for two tours of 18 to 24 months, with possible permanency. Salary and overseas pay £600, rising to £970 a year. Commencing salary according to age and war service. Outfit allowance £60. Free passages. Candidates age 25 to 35, must have a good general knowledge of railway and harbour working, including office procedure, accounting and statistics, with, preferably, some experience in the head office of a home railway. They should be capable of drafting letters and reports and have organising ability. Apply at once by letter stating age, whether married or single, and full particulars of qualifications and experience, and mentioning this paper, to the CROWN AGENTS FOR THE COLONIES, 4, Millbank, London, S.W.1, quoting M/N/18068 on both letter and envelope.

THE FIRST PASSENGER RAILWAY. By Charles E. Lee. A history of the Swansea & Mumbles Railway, which extends over 136 years. Cloth. 8½ in. by 5½ in. 91 pp. Illustrated. 5s. By post 5s 3d.

Government 3½ per cent. redeemable bonds, with interest from February 1, 1941.

Derailment at Strood, Southern Railway.—The last coach of a Southern Railway electric train from Chatham to Chartering Cross became derailed just before entering Strood Tunnel on October 10. The coach struck and bent a signal gantry, and then hit the tunnel portal. There were no passengers in the coach, but the guard was injured. The passengers in the remainder of the train walked back to Strood Station, and continued their journey in a relief train. The line was cleared within an hour.

Electric Vans for Parcels Delivery Services.—Both the G.W.R. and the L.N.E.R. recently have ordered from the Brush Electrical Engineering Co. Ltd., 32, Duke Street, London, S.W.1, a number of Brush-Bred battery electric vans for their parcels delivery services. These vehicles are illustrated below. The G.W.R. van, shown on the left, is one of two prototype vehicles which that company has ordered for its express cartage service, the bodies of which, mounted on 25/30 cwt. chassis, were specially built for the company at the Loughborough works of Brush Coach-

OFFICIAL NOTICES

Admiralty—Movements Department

APPLICATIONS are invited for a vacant post of Rail Transport Officer on the Staff of the Director of Movements, Admiralty.

Candidates must be between 35 and 50 years of age, and must have Railway experience, including service on Headquarters staff, and possess a thorough general knowledge of Railway operations and be competent to deal with:

(a) Restrictions on the movement of traffic owing to temporary embargoes.

(b) Claims for loss and damage to Admiralty consignments and private effects belonging to Naval Officers and ratings.

(c) Rates for conveyance of traffic from Admiralty contractors.

(d) Questions of demurrage.

The post carries a salary range of £650 by £25 to £750 per annum, the entry point within the range being fixed according to age, qualifications and experience. The appointment will be temporary in the first instance but subject to satisfactory service the successful candidate will be favourably considered for the post of Principal Rail Transport Officer which is expected to fall vacant in about two years' time. This post carries a salary scale of £800 by £25 to £965 per annum and is pensionable under the Superannuation Acts.

Applications giving date of birth, particulars of qualifications and experience, and accompanied by copies of testimonials, should be forwarded to the SECRETARY OF THE ADMIRALTY (C.E. Branch D) not later than November 10, 1947, quoting Reference No. C.E. 5993/46.

Candidates who have already been declared unsuccessful should not re-apply.

Crown Agents for the Colonies

APPLICATIONS from qualified candidates are invited for the following post:

ASSISTANT TRAFFIC SUPERINTENDENT required by Gold Coast Government Railway Department for two tours of 18 to 24 months with prospects of permanency. Salary, plus overseas pay, £600, rising to £1,200 a year. Commencing salary according to age and experience. Outfit allowance £60. Free passages. Candidates not over 35 and preferably members of the Institute of Transport, must have thorough practical knowledge of traffic operating and railway commercial work, both passenger and goods, including accounts. Knowledge of Morse telegraphy and dock working desirable. Apply at once by letter, stating age, whether married or single, and full particulars of qualifications and experience, and mentioning this paper, to the CROWN AGENTS FOR THE COLONIES, 4, Millbank, London, S.W.1, quoting M/N/18208 on both letter and envelope.

BRITISH Railway Company operating in Chile has a vacancy for an Assistant Stores Superintendent. Commencing salary £900 per annum rising to £1,100. Must have had considerable experience in Railway Stockkeeping. Good education. Passage paid and free quarters provided. Write giving full details and experience to Box 1935, c/o CHARLES BARKER & SONS LTD., 31, Budge Row, London, E.C.4.

PLASTICS IN RAILWAY ENGINEERING. By T. Lovatt Williams and D. Warburton Brown. 1s. By post 1s. 2d.

works Limited. The L.N.E.R. van, shown on the right, which also was built to the specification of the railway company, has an 18/22 cwt. Brush-Bred chassis, with roller shutters fitted at the rear. High headroom is a feature of this model.

Skeleton Staffs to Help Transport Men.

—Skeleton staffs for loading and unloading vehicles at factories are recommended by Mr. Roger Sewill, Director of the Road Haulage Association, as the simplest method of overcoming difficulties which are being experienced by hauliers on days when factories are closed in order to spread the electricity load. The consequent waste of vehicles and manpower could be saved if skeleton banking staffs were provided. Mr. Sewill suggests that similar arrangements might be made for firms closing on Saturdays.

Motorcoaches to Supplement London Buses.

—London Transport officially announced on October 14 the "unprecedented" step of hiring luxury private coaches for use on its bus routes. Negotiations for this purpose were reported in last week's issue. Nearly all Central Bus routes are to be augmented, and the coaches, of which some 350 have been

hired, will enter service on October 27. The decision to hire the coaches is described by the Board as "a direct assault on travel congestion during this winter and as assistance to the public following abolition of the basic petrol ration." The necessity of hiring arose because buses and spare parts which London Transport had on order were held up by national supply difficulties. Every bus will bear in 6-in. letters on the front and sides "L.P.T.B. Relief." Large printed notices will show the bus route number and the points to which it runs. Practically all Central Bus routes will receive coaches. The accommodation of each coach will be from 28 to 35 seats. Many of the best-known coach owners in London will be contributing vehicles.

Forthcoming Meetings

October 21 (Tue.).—The Society of Engineers, 17, Victoria Street, Westminster, London, S.W.1, 6.30 p.m.: "Fine Grinding in Industry," by Dr. S. E. Blythe, F.C.S., F.R.A.S., F.Inst.F., A.M.I.E.E., M.Soc.C.E. (France). A.Am.I.E.E.

Electric Vans for Railway Parcels Delivery Services



Two Brush-Bred electric vans for parcels delivery ordered from the Brush Electrical Engineering Company by the G.W.R. and L.N.E.R. (see paragraph above)

Railway Stock Market

Uncertainty has kept stock market business at a small level, and values proved sensitive to moderate buying or selling, with sharp contrasting movements in British Funds and industrials. The former have responded readily to Mr. Dalton's latest cheap money statement, gains in long-dated stocks ranging up to £2 $\frac{1}{2}$ at the time of writing, although best levels have not been held. Industrials fell back on a wide front now that an emergency Budget next month is a certainty, and there are widespread expectations of heavy additional taxation of company profits. The City is hopeful, however, that the latter will be confined largely to profits distributed in dividends and that there will be no revival of E.P.T., which, while it was in force, produced so many anomalies and proved a check to enterprise and initiative.

The strength of British Funds has been attributed to a large volume of "small" buying which followed Mr. Dalton's statement indicating that he may contemplate attempting to re-establish long-dated British Funds on a 2 $\frac{1}{2}$ per cent. yield basis. So far there has been no evidence of official support for the market. In many quarters it is thought that this very well may be left until after the emergency Budget, which in itself, by making industrials unattractive owing to increased taxation, may give a boost to gilt-edged stocks. Moreover, between now and the end of the year it can be expected that the weight of money awaiting investment will be increased considerably by share-out moneys in respect of Argentine railway prior charges; the assumption is that the bulk of this is likely to be reinvested in British Funds.

Nevertheless, in order to return 2 $\frac{1}{2}$ per

cent. Consols and Treasury Bonds to a 2 $\frac{1}{2}$ per cent. yield basis, substantial support would be required, these key long-dated stocks now being 85 $\frac{1}{2}$, or 14 $\frac{1}{2}$ below par. Moreover, even if this were accomplished, it would seem extremely doubtful if they could remain at this level for more than a short period. Mr. Dalton cannot have in mind exerting strong support for gilt-edged solely in order that it may be possible for the rate of interest on British Transport stock to be no higher than 2 $\frac{1}{2}$ per cent. This would be justified only if there were reasonable prospects of long-dated British Funds remaining for a long period at a 2 $\frac{1}{2}$ per cent. basis.

No doubt a strenuous effort will be made to raise gilt-edged prices, but it still seems extremely unlikely that the interest rate on British Transport stock will be as low as 2 $\frac{1}{2}$ per cent. On the other hand, 3 per cent. now seems improbable, and 2 $\frac{1}{2}$ per cent. may very well be decided on. Moreover, it must not be assumed that British Transport stock necessarily will be a long-dated stock, although this is generally regarded as highly probable.

With British Funds on the up grade and industrials declining, it would seem that home rails have added attractions as a refuge for money during the next few months, in view of the safeguard provided by the take-over prices and the reasonable assumption that market prices will approximate to the latter before the end of the year. Nevertheless, home rails have remained quiet, with business on moderate lines and market values so far indifferent to the rise in gilt-edged and the fall in industrials. Moderate buying in many instances was offset by small selling; but investors who have had the patience to

retain home rails would be foolish to dispose of their holdings now, bearing in mind the probability that market prices will come near to take-over levels before the end of the year. Moreover, a seller of home rails would have great difficulty in obtaining any alternative short-term investment with the same scope for capital appreciation.

Iron and steel shares have lost ground with the general trend, although in many cases movements did not exceed more than a few pence, the industry's further output expansion and the view that nationalisation may be postponed for at least a year having helped sentiment.

There have been small irregular movements in Argentine rails, although ratification of the agreement is expected at Buenos Aires before the end of the month. Further talk of take-over possibilities maintained a fair amount of attention in Central Uruguay stocks, the ordinary being 23 $\frac{1}{2}$ and the second debentures 65 $\frac{1}{2}$; while elsewhere Mexican Railway 6 per cent. debentures further strengthened to 84. On the other hand, United of Havana 1906 debentures receded further to 17 $\frac{1}{2}$, and Brazilian rails were easier, with San Paulo 156 $\frac{1}{2}$ and Leopoldina ordinary and preference 14 and 39 respectively.

RHODESIA RAILWAYS BOARD.—When Sir Godfrey Huggins, Prime Minister of Southern Rhodesia, visits London next month, it is expected that discussions of the draft railway nationalisation Bill for Rhodesia will include a proposal for an early resignation of the London Board of Directors of Rhodesia Railways Limited, to enable a new board to be appointed in Rhodesia before the end of the year.

Traffic Table and Stock Prices of Overseas and Foreign Railways

Railways	Miles open	Week ended	Traffic for week		No. of week	Aggregate traffics to date			Shares or Stock	Prices		
			Total this year	Inc. or dec. compared with 1945/46		Totals		Increase or decrease		Highest 1946	Lowest 1946	Oct. 14, 1947
			1946/7	1945/6		1946/7	1945/6					
Antofagasta ...	834	5.10.47	£ 52,540	+ 13,700	40	£ 1,676,380	£ 1,316,500	+ 359,880	Ord. Stk.	11	10 $\frac{1}{2}$	11
Arg. N.E. ...	753	4.10.47	ps.350,100	+ ps.20,300	14	ps.4,534,800	ps.4,438,500	+ ps.96,300	6 p.c. Deb.	17	5 $\frac{1}{2}$	10
Bolivar ...	174	Sept., 1947	895,194	- \$13,743	39	896,030	896,834	- \$8,804	Bonds	30 $\frac{1}{2}$	26	43 $\frac{1}{2}$
Brazil ...												
B.A. Pacific ...	2,771	4.10.47	ps.2,700,000	+ ps.260,000	14	ps.34,925,000	ps.30,028,000	+ ps.4,897,000	Ord. Stk.	8 $\frac{1}{2}$	5 $\frac{1}{2}$	10
B.A.G.S. ...	5,080	4.10.47	ps.3,250,000	+ ps.511,000	14	ps.45,964,000	ps.45,339,000	+ ps.625,000	Ord. Stk.	16	10 $\frac{1}{2}$	16
B.A. Western ...	1,924	4.10.47	ps.1,440,000	+ ps.385,000	14	ps.19,259,900	ps.16,436,000	+ ps.2,823,000	Ord. Stk.	19	9 $\frac{1}{2}$	21
Cent. Argentine ...	3,700	4.10.47	ps.3,565,990	+ ps.507,925	14	ps.45,817,760	ps.43,471,505	+ ps.2,346,255	Dfd.	10 $\frac{1}{2}$	7 $\frac{1}{2}$	17
Do. ...												
Cent. Uruguay ...	970	4.10.47	29,591	- 4,146	14	445,593	493,350	- 47,757	Ord. Stk.	8 $\frac{1}{2}$	3 $\frac{1}{2}$	23
Costa Rica ...	262	Aug., 1947	30,665	+ 1,689	9	63,523	58,650	+ 4,873	Stk.	15	12	9
Dorada ...	70	Aug., 1947	31,100	+ 4,300	35	243,900	256,775	- 12,875	I Mt. Deb.	102 $\frac{1}{2}$	99 $\frac{1}{2}$	108
Entre Rios ...	808	4.10.47	ps.451,800	+ ps.44,700	14	ps.6,153,900	ps.5,878,900	+ ps.274,100	Ord. Stk.	9	5 $\frac{1}{2}$	10
G.W. of Brazil ...	1,030	4.10.47	38,500	+ 3,200	40	1,257,000	1,103,400	+ 153,600	Ord. Stk.	26	20 $\frac{1}{2}$	3
Inter. Ctr. Amer. ...	794	Aug., 1947	\$1,049,057	+ \$217,646	35	\$9,012,068	\$7,303,649	+ \$1,708,419	S.p.c. Deb.	70	58	83 $\frac{1}{2}$
La Guaira ...	22 $\frac{1}{2}$	Sept., 1947	\$105,861	- \$9,279	39	\$988,095	\$1,059,566	- 871,471	Ord. Stk.	5 $\frac{1}{2}$	3 $\frac{1}{2}$	14
Leopoldina ...	1,918	4.10.47	77,685	+ 7,645	40	2,667,639	2,376,915	+ 290,724	Ord. Stk.	14	14	1
Mexican ...	483	31.5.47	ps.1,464,000	+ ps.459,100	22	ps.7,706,200	ps.13,441,600	+ ps.5,220,000	Ord. Stk.	7,421	18,074	18,074
Midland Uruguay ...	319	Aug., 1947	16,601	- 4,384	9	32,448	172,554	+ 18,074	Ord. Sh.	83 $\frac{1}{2}$	71 $\frac{1}{2}$	63 $\frac{1}{2}$
Nitrate ...	382	30.9.47	8,242	+ 4,463	39	39,969	154,480	+ 3,805	Ord. Sh.	83 $\frac{1}{2}$	71 $\frac{1}{2}$	63 $\frac{1}{2}$
N.W. of Uruguay ...	113	Aug., 1947	3,791	- 3,087	9	7,778	11,581	- 11,581	Pr. Li. Stk.	78 $\frac{1}{2}$	60	44 $\frac{1}{2}$
Paraguay Cent. ...	274	10.10.47	ps.70,510	+ ps.18,232	15	ps.800,751	ps.908,445	+ \$1,07,694	Pr. Li. Stk.	16 $\frac{1}{2}$	8 $\frac{1}{2}$	8
Peru Corp. ...	1,059	Sept., 1947	185,580	+ 29,801	13	517,763	476,463	+ 41,300	Ord. Stk.	119 $\frac{1}{2}$	52 $\frac{1}{2}$	157
Salvador ...	100	July, 1947	ps.75,000	+ 7,000	4	ps.2,000	ps.2,000	+ 7,000	Ord. Stk.	22 $\frac{1}{2}$	15 $\frac{1}{2}$	20 $\frac{1}{2}$
San Paulo ...	153 $\frac{1}{2}$											
Tatral ...	156	Sept., 1947	5,410	- 800	13	16,415	13,260	+ 3,155	Ord. Stk.	2	1 $\frac{1}{2}$	2
United of Havana ...	1,301	6.9.47	57,974	+ 12,420	10	597,603	541,437	+ 56,166	Ord. Stk.	—	—	—
Uruguay Northern ...	73	Aug., 1947	1,111	- 365	9	16,700	19,939	- 3,239	Ord. Stk.	—	—	—
Canadian National ...	23,535	Aug., 1947	9,254,750	+ 482,750	34	71,822,500	63,922,500	+ 7,899,750	Ord. Stk.	25 $\frac{1}{2}$	16 $\frac{1}{2}$	18 $\frac{1}{2}$
Canadian Pacific ...	17,037	Aug., 1947	6,652,500	+ 348,000	35	51,289,000	47,182,000	+ 4,107,000	Ord. Stk.	—	—	—
Baris Light ...	202	Sept., 1947	20,947	+ 5,362	26	159,525	144,900	+ 14,625	Ord. Stk.	123 $\frac{1}{2}$	111	108 $\frac{1}{2}$
Beira ...	204	July, 1947	98,525	+ 7,271	41	927,422	767,420	+ 160,002	Pr. Sh.	9 $\frac{1}{2}$	5	6
Egyptian Delta ...	607	20.8.47	14,458	- 1,876	20	225,128	233,110	- 7,982	B. Deb.	75	60	72 $\frac{1}{2}$
Manila ...									Inc. Deb.	85	70	74 $\frac{1}{2}$
Mid. of W. Australia ...	277	Aug., 1947	20,028	+ 4,576	9	37,716	29,947	+ 7,769	—	—	—	—
Nigeria ...	1,900	July, 1947	296,272	+ 73,139	17	1,339,004	1,490,315	- 151,311	—	—	—	—
Rhodesia ...	2,445	July, 1947	579,717	+ 30,734	41	5,558,202	5,149,365	+ 432,837	—	—	—	—
South African ...	13,323	13.9.47	1,254,934	+ 34,653	24	29,432,323	26,233,989	+ 3,198,334	—	—	—	—
Victoria ...	4,774	May, 1947	989,352	- 361,928	48	—	—	—	—	—	—	—

† Receipts are calculated @ 1s. 6d. to the rupee